WY Conditions & Outlooks:

Precipitation, Temperatures, Drought, Floods, & Everything In-between

October 27, 2022

Presentation Outline

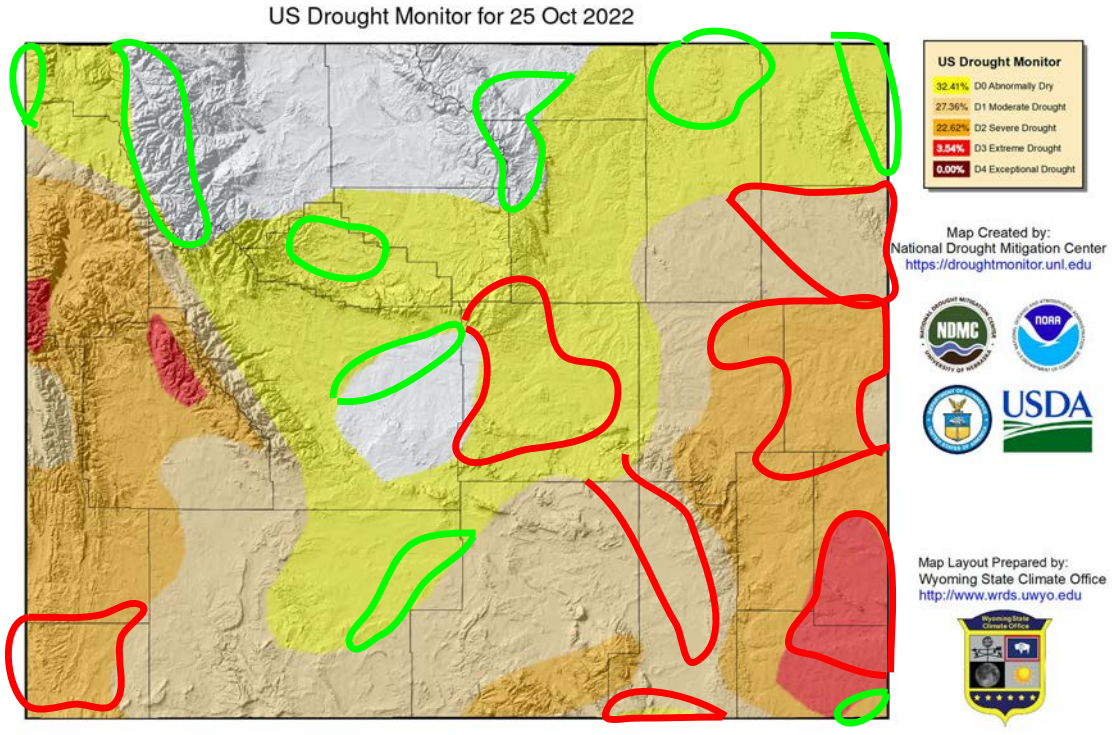
- **Current Conditions:** Overview
  - Reservoirs & Winter Releases
  - Streamflow
- **Outlooks:** Temperature & Precipitation
  - Winter Outlook
- **How to Get Involved**
- **Questions**

Current Conditions

US Drought Monitor for October 25, 2022

(Released Thursday, October 27, 2022)

Valid 8 a.m. EDT



Drought Level	Percentile
None	>30
D0 (Abnormally Dry)	21 to 30
D1 (Moderate Drought)	11 to 20
D2 (Severe Drought)	6 to 10
D3 (Extreme Drought)	3 to 5
D4 (Exceptional Drought)	0 to 2

https://youtu.be/45MQ1GB-uTc

Improvements and degradations since the last webinar. Recent precipitation in the north has resulted in Improvements in many areas across the north. Degradations in the east and southeast which has seen little precipitation the last month.

https://droughtmonitor.unl.edu

droughtmonitor.unl.edu

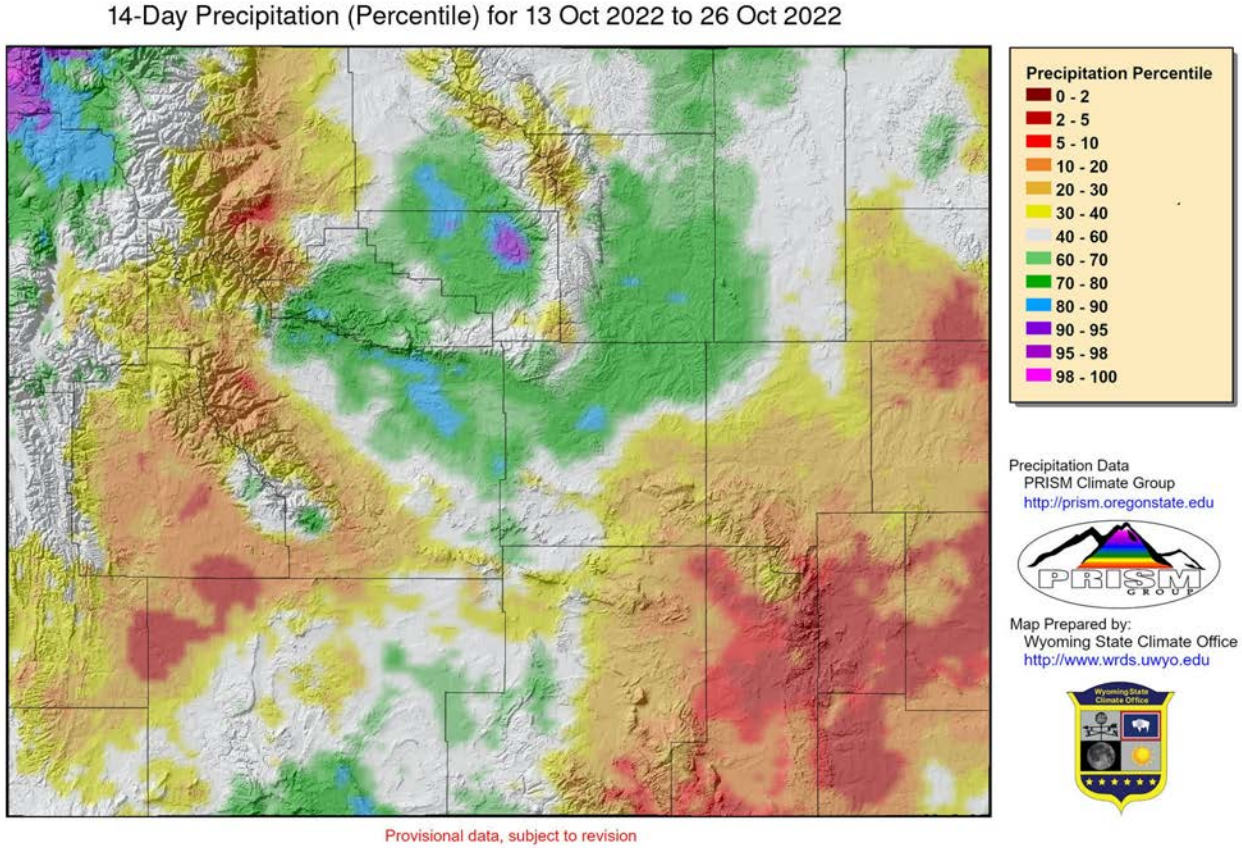
14-Day Precipitation Percentile (03 Oct 2022 to 26 Oct 2022)

Above Median:

- Northwest
- North Central
- Southern Sweetwater

Below Median (Areas of Concern):

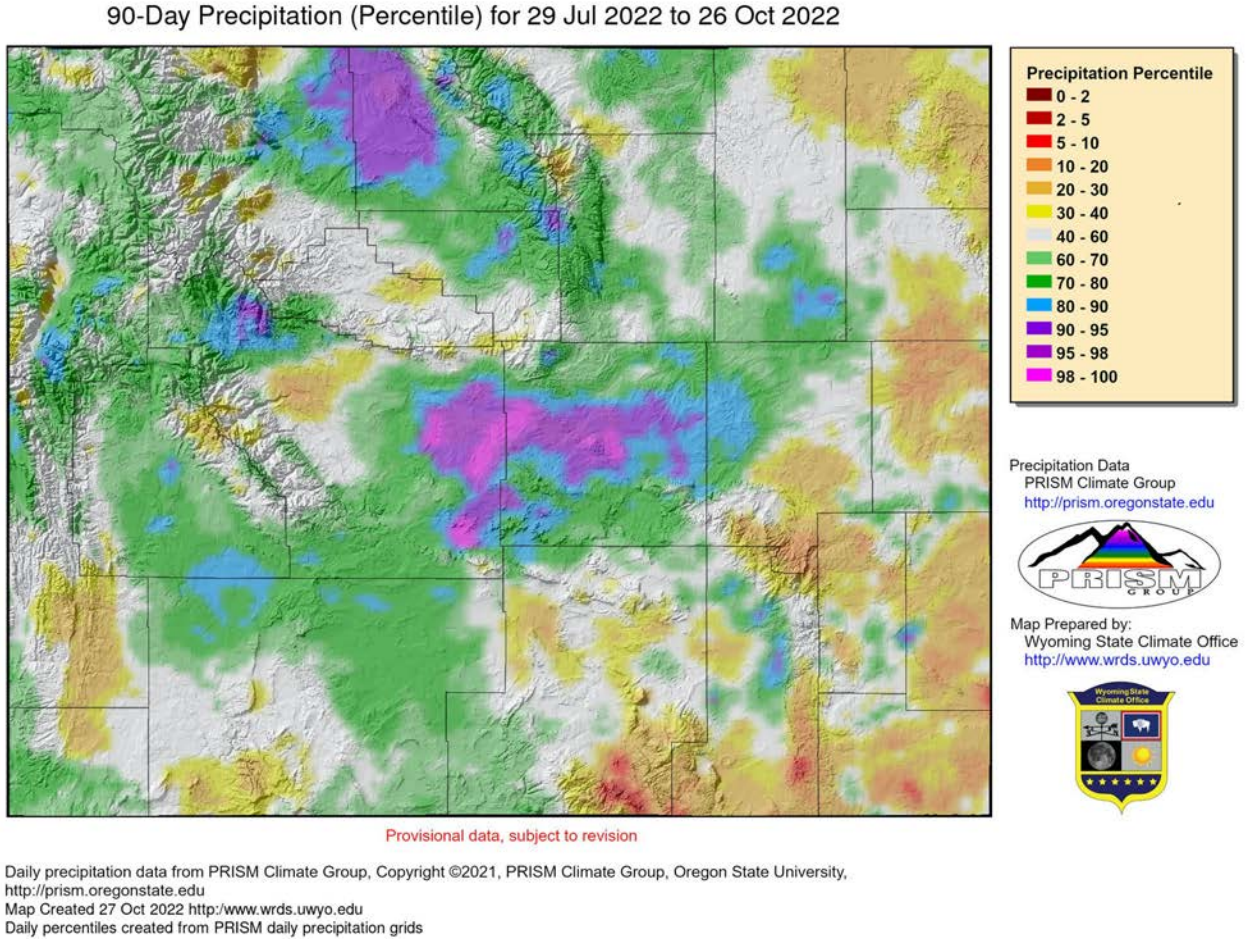
- West
- Southeast/East



90-Day Precipitation Percentile (29 Jul 2022 to 26 Oct 2022)

Above Median:
- Most of the state

Below Median (Areas of Concern):
- Northeast
- East
- Sierra Madre/Medicine Bows
- Lincoln/Sweetwater

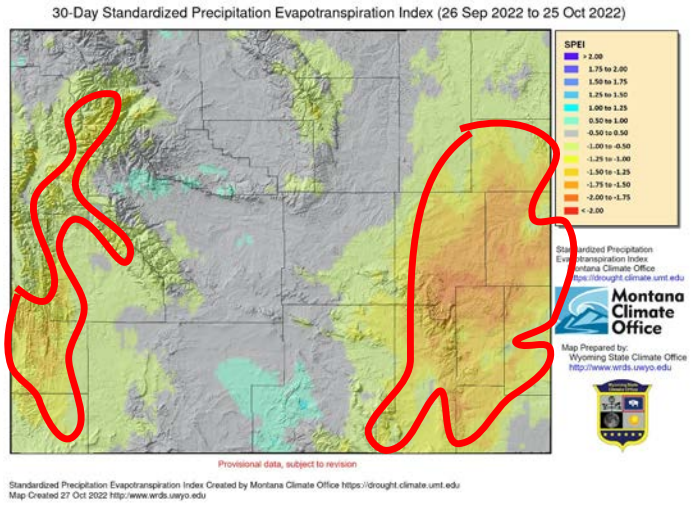


WRDS
Water Resources Data System

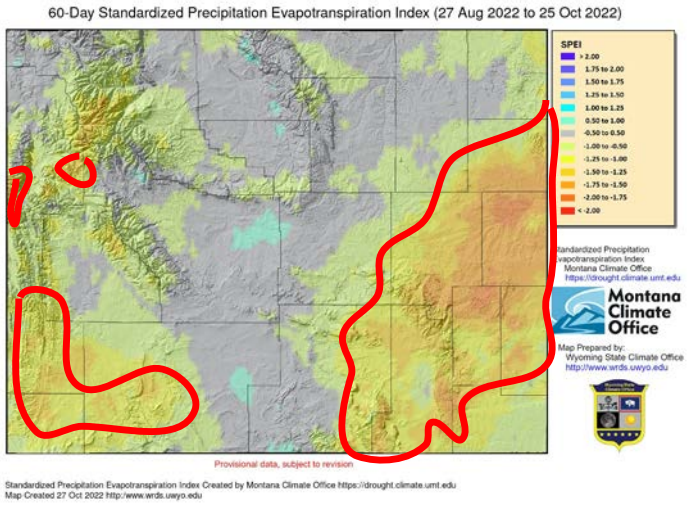
Standardized Precipitation Evapotranspiration Index (SPEI)

Short term: Emerging concerns in the west and east.
Long term: Southwest.

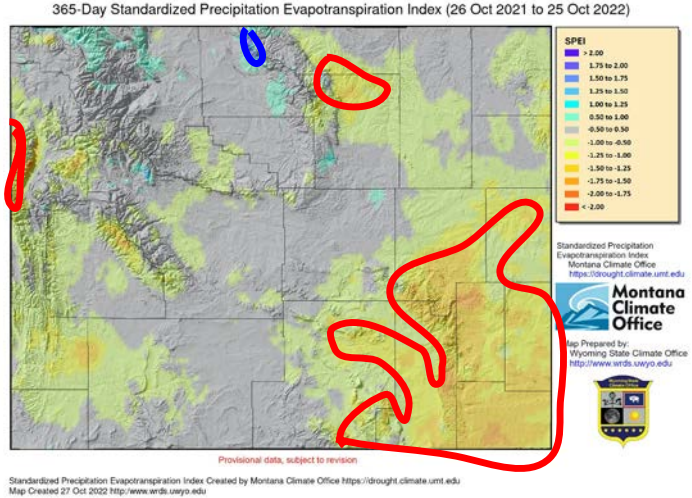
30-Day →



60-Day →



1-Year →

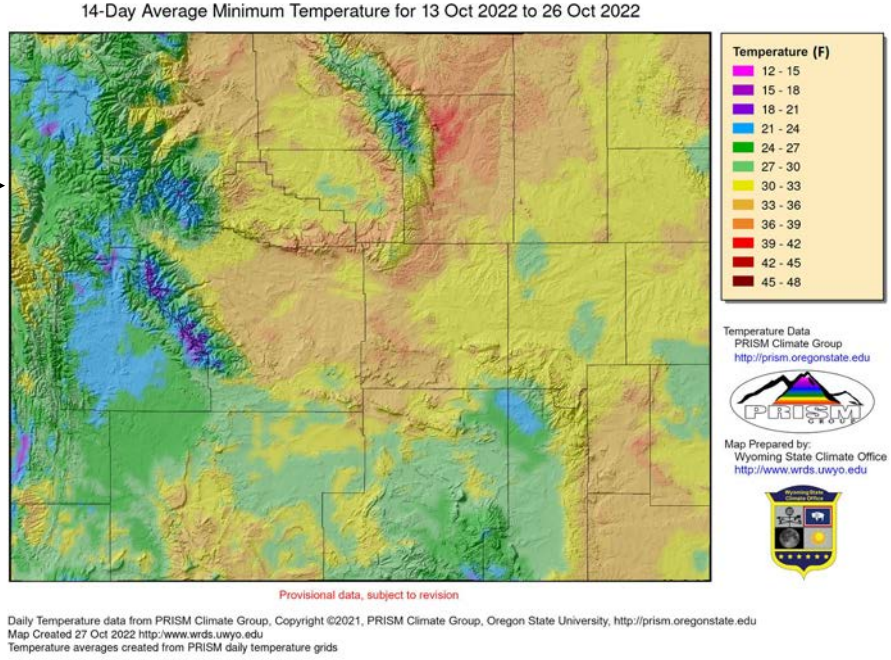


https://drought.climate.umt.edu

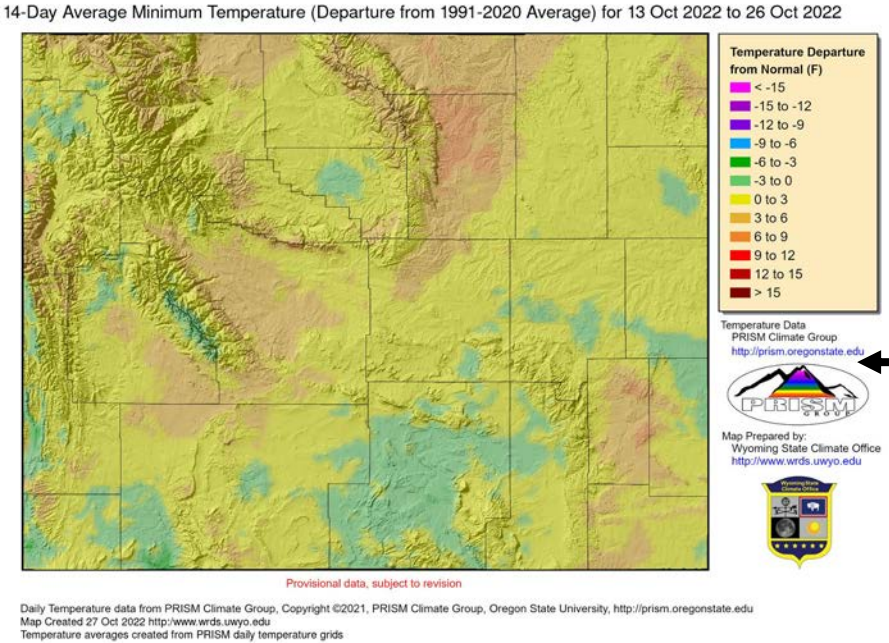
WRDS Water Resources Data System

14-Day Average Minimum Temperature (13 Oct to 26 Oct)

- Night time lows dropping below freezing in west and south-central along with scattered other areas.



14-Day *Departure from* Normal Average Minimum Temperature

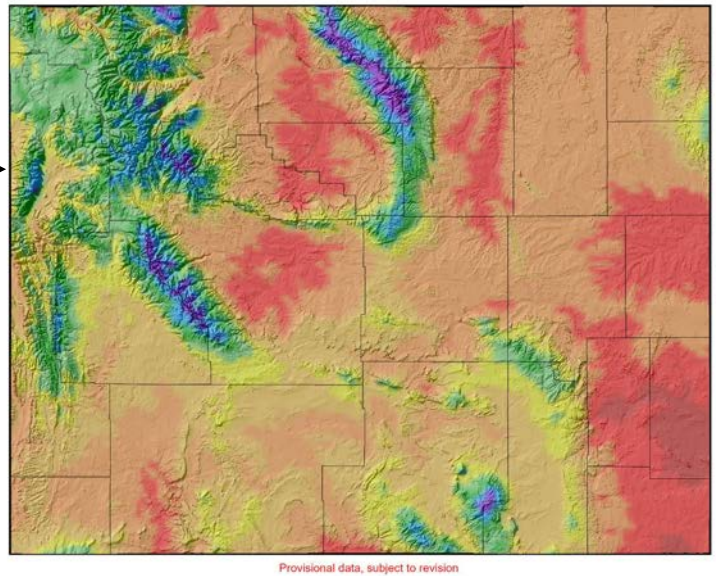


- Generally within +/- 3F of Average
- Powder/Tongue, central Fremont county and other areas up to 6F above average.

WRDS Water Resources Data System

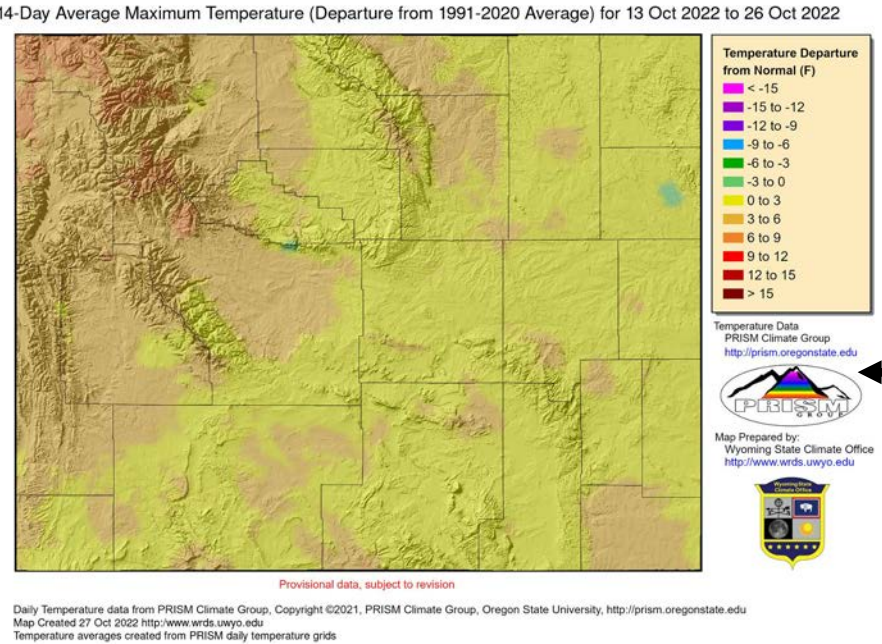
14-Day Average Maximum Temperature (13 Oct to 26 Oct)

- Upper 50s and above in lower elevations.
- Upper 60s in east and southeast



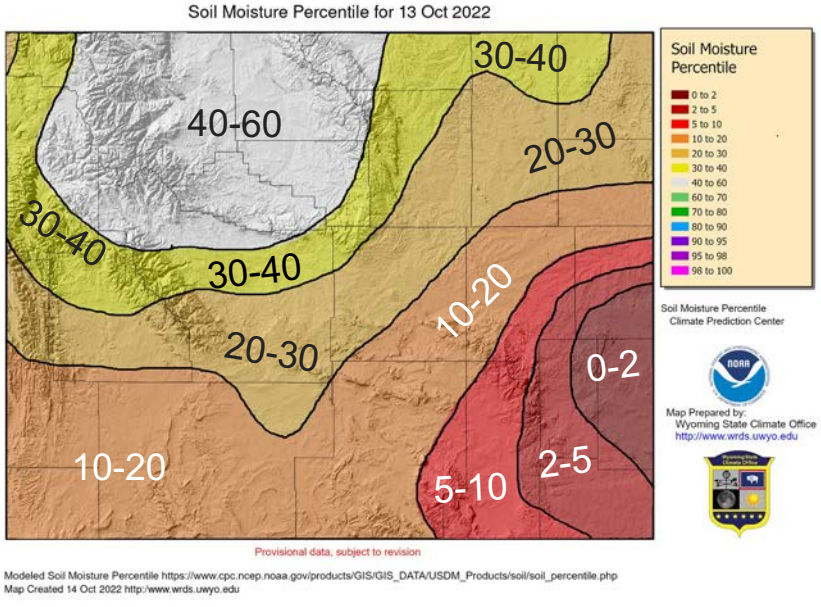
14- Day *Departure from* Normal Average Maximum Temperature

- West 3F to 6F above average
- Remainder up to 3F above average

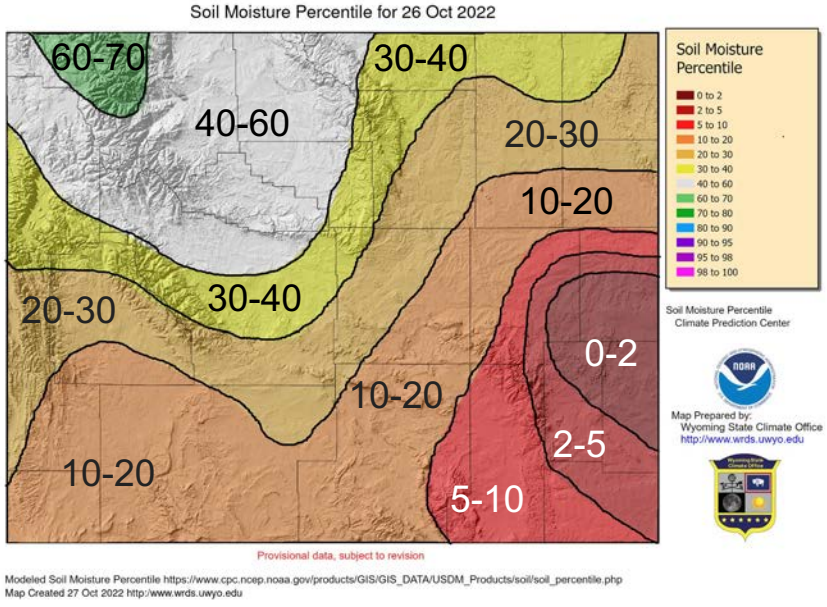


Soil Moisture Percentile

Two Weeks Ago



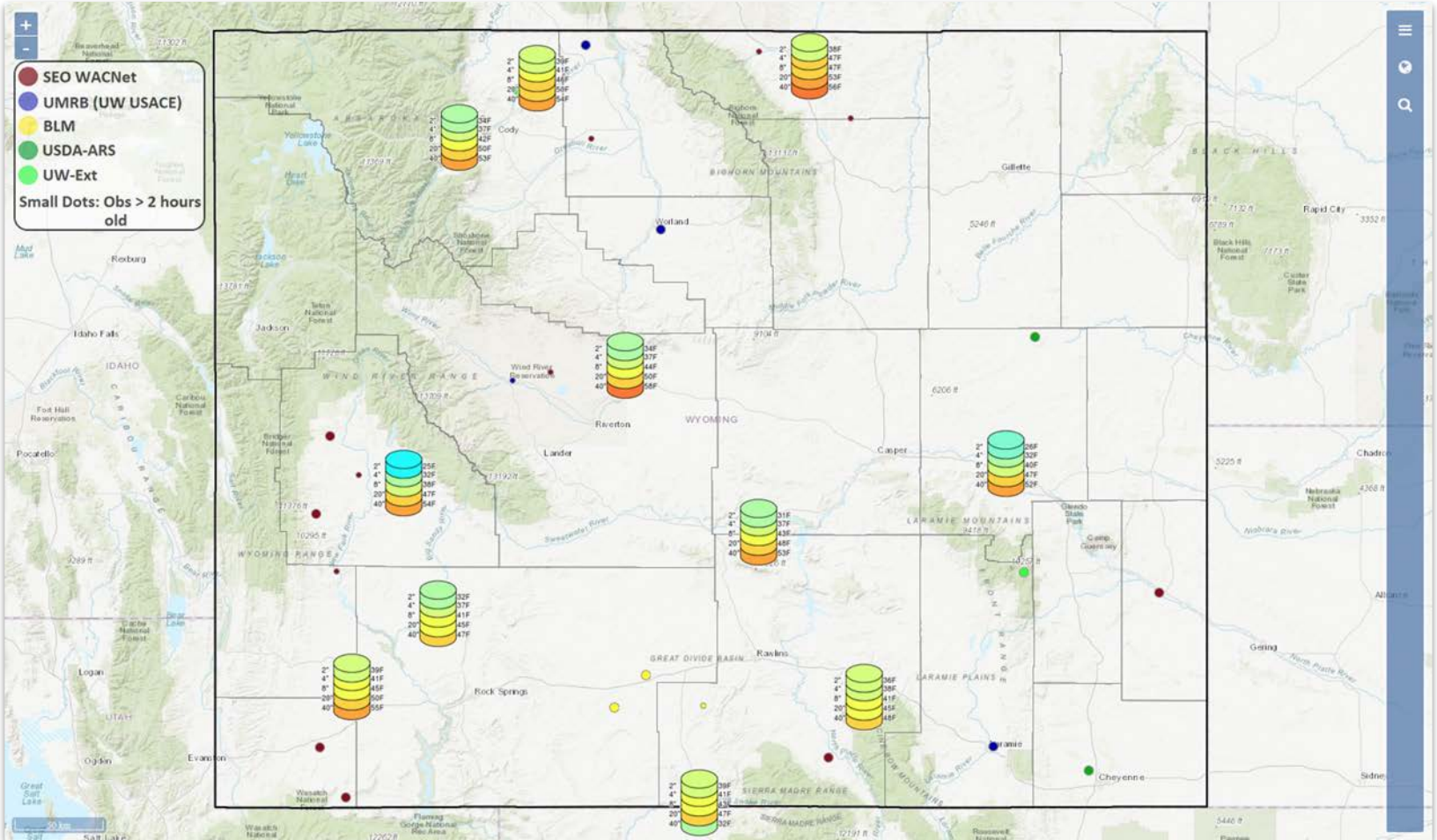
October 26, 2022



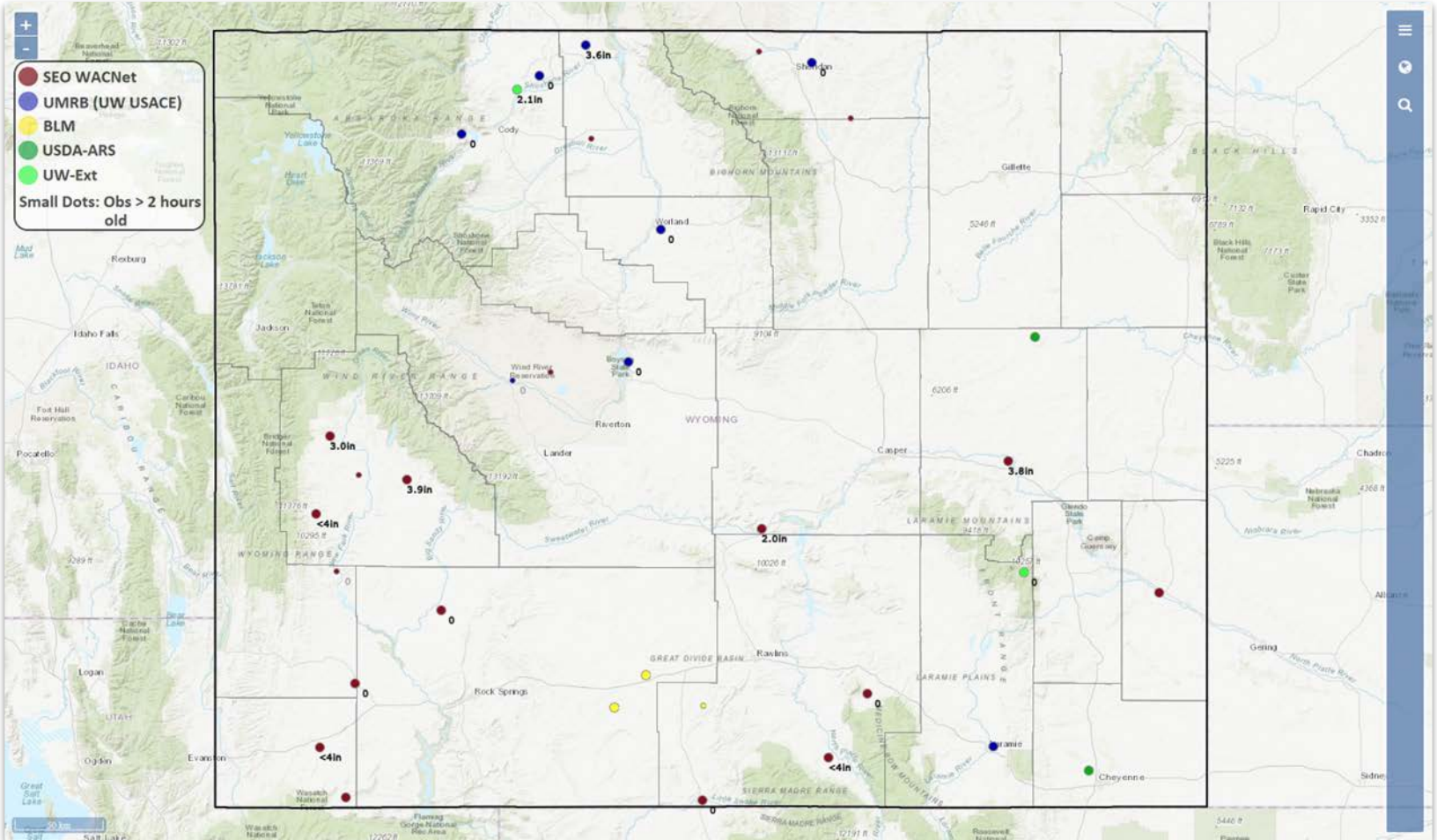
http://www.wrds.uwyo.edu/Soil/Current_SoilMoisture_Ptile.html

Mostly unchanged, improvements in west and northwest.

Soil Temperatures (27 Oct 2022)



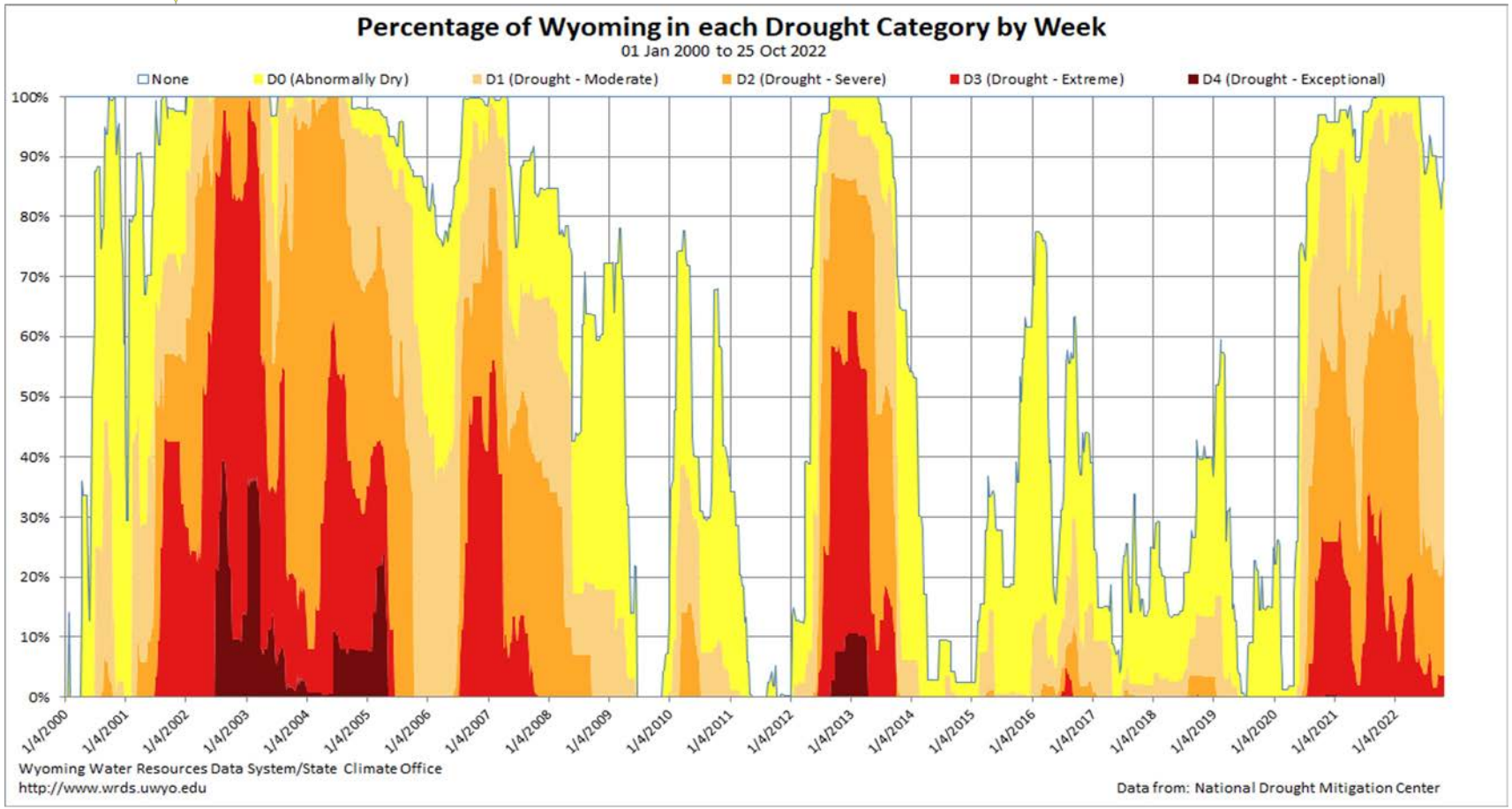
Frost Depths (0700 - 27 Oct 2022)



WRDS Water Resources Data System

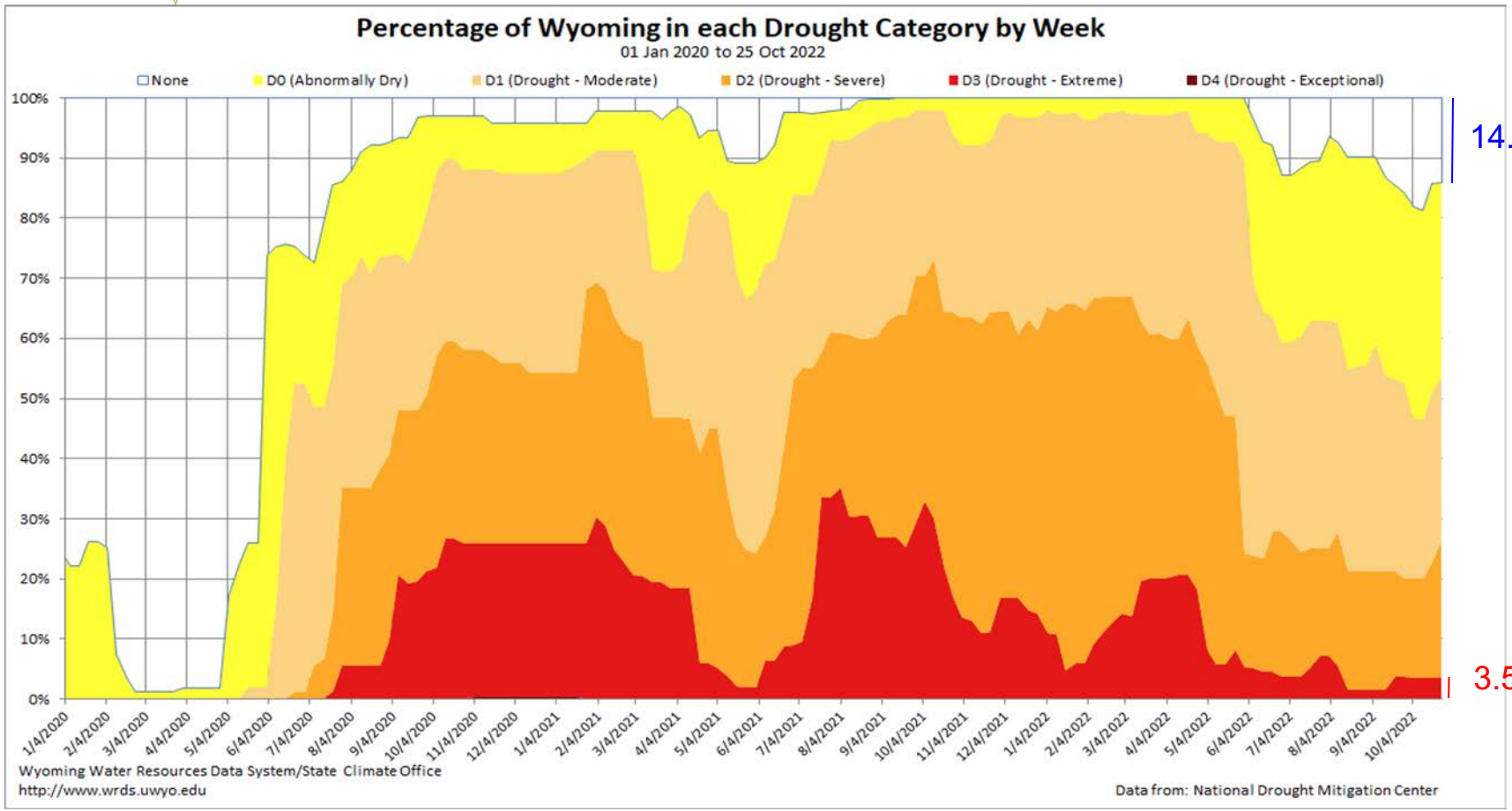
A decrease of 0.30% from last Webinar

Wyoming Area Affected: 85.93% D0-D4 ; 53.51% D1-D4



http://www.wrds.uwyo.edu/drought/droughttimeline.html

WRDS
Water Resources Data System



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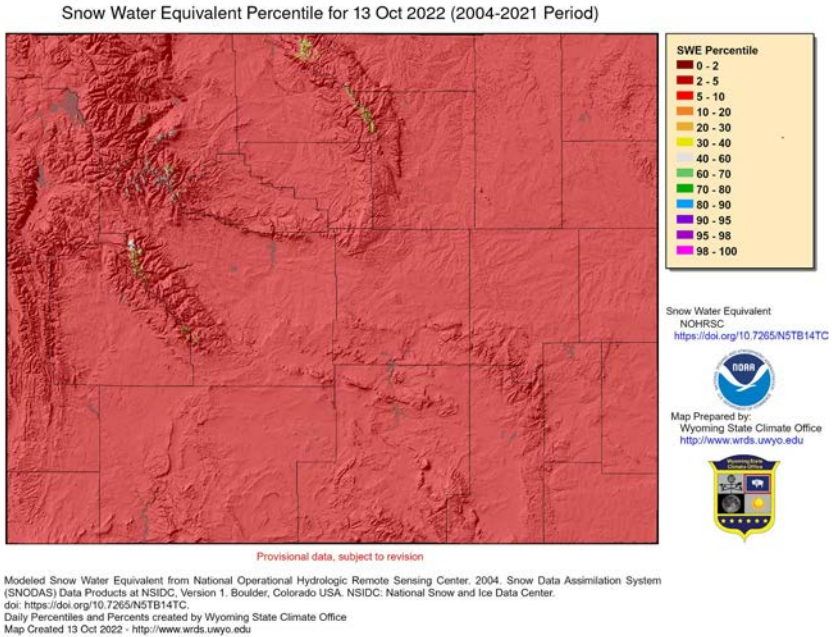
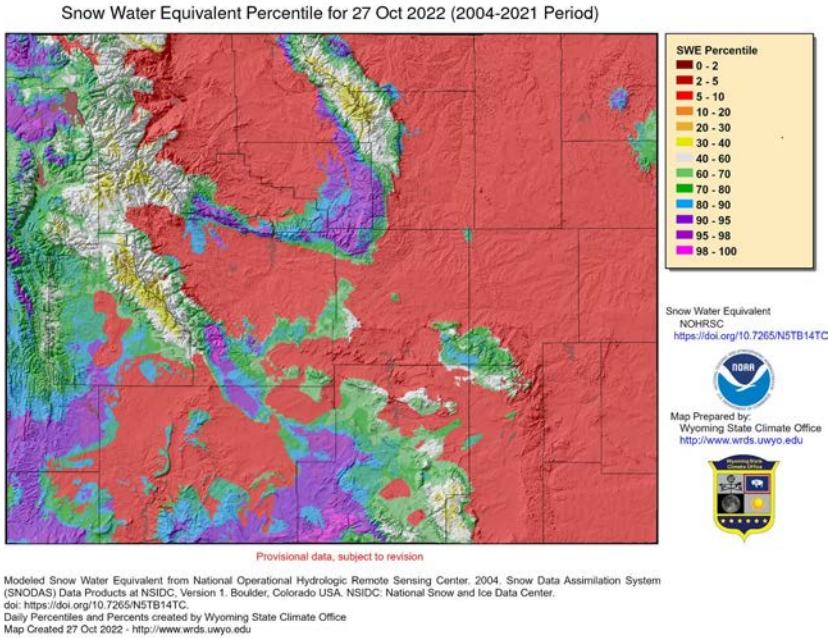
Snow

Two Weeks Ago



October 27, 2022



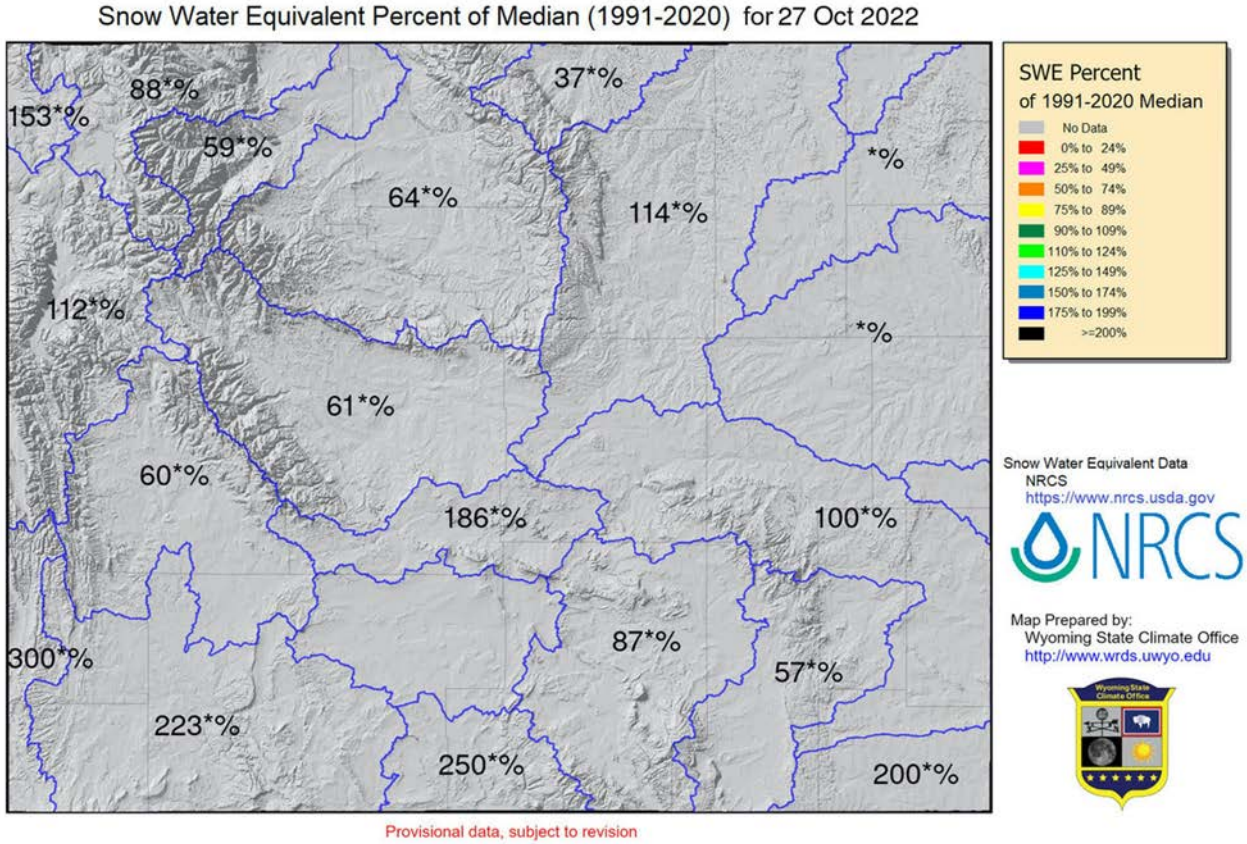
http://www.wrds.uwyo.edu/Soil/Current_SoilMoisture_Ptile.html

Brief accumulations for a few weeks starting 10 Sep but first substantial snows 23 Oct

Snow Water Equivalent by Basin (27 Oct 2022)

Very early in the season.

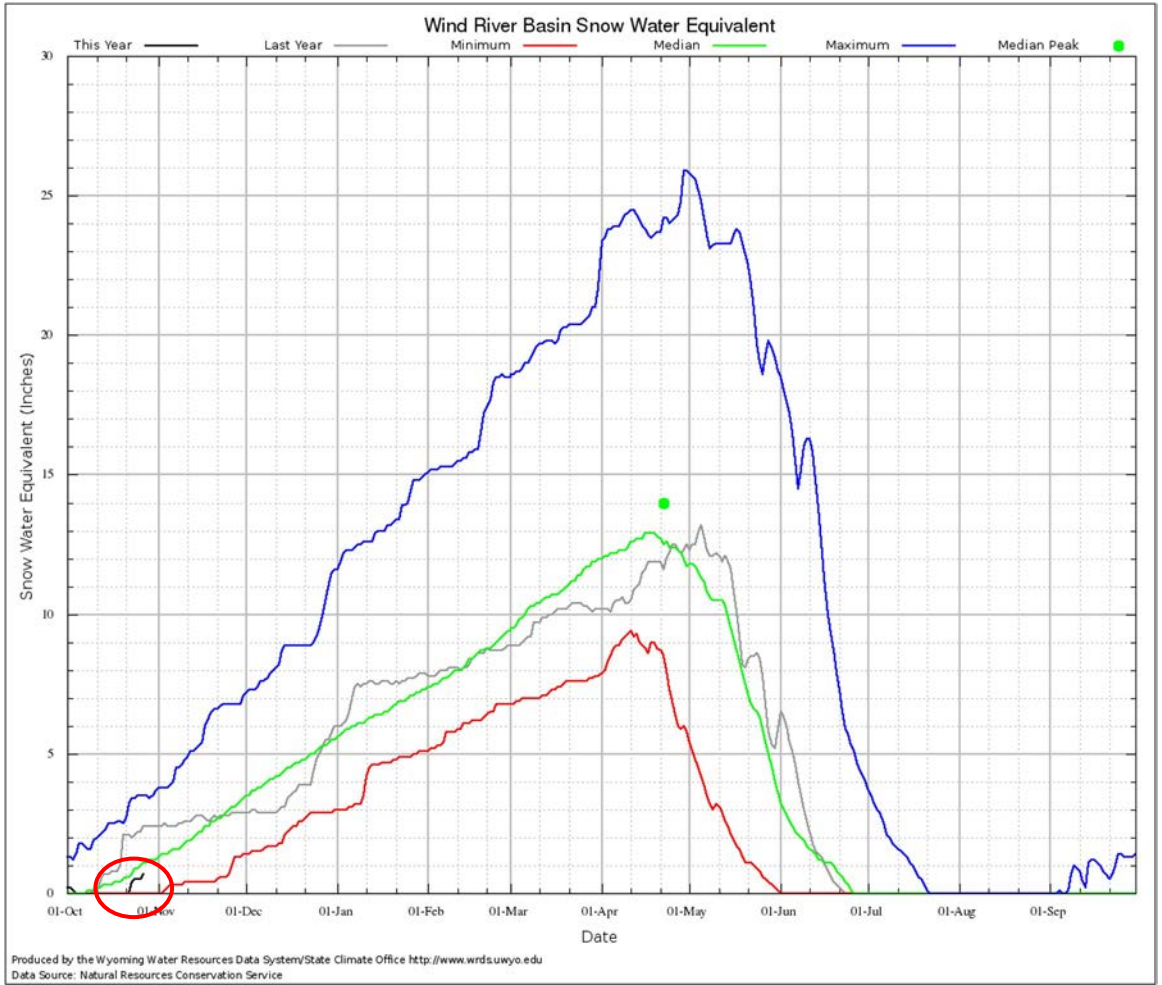
Basins are still “asterisked” meaning that, while a percentage MAY be calculated, it is of little significant value at this point.



http://www.wrds.uwyo.edu/wrds/nrcs/snowmap/snowmap.html

Snow Water Equivalent by Basin (27 Oct 2022)

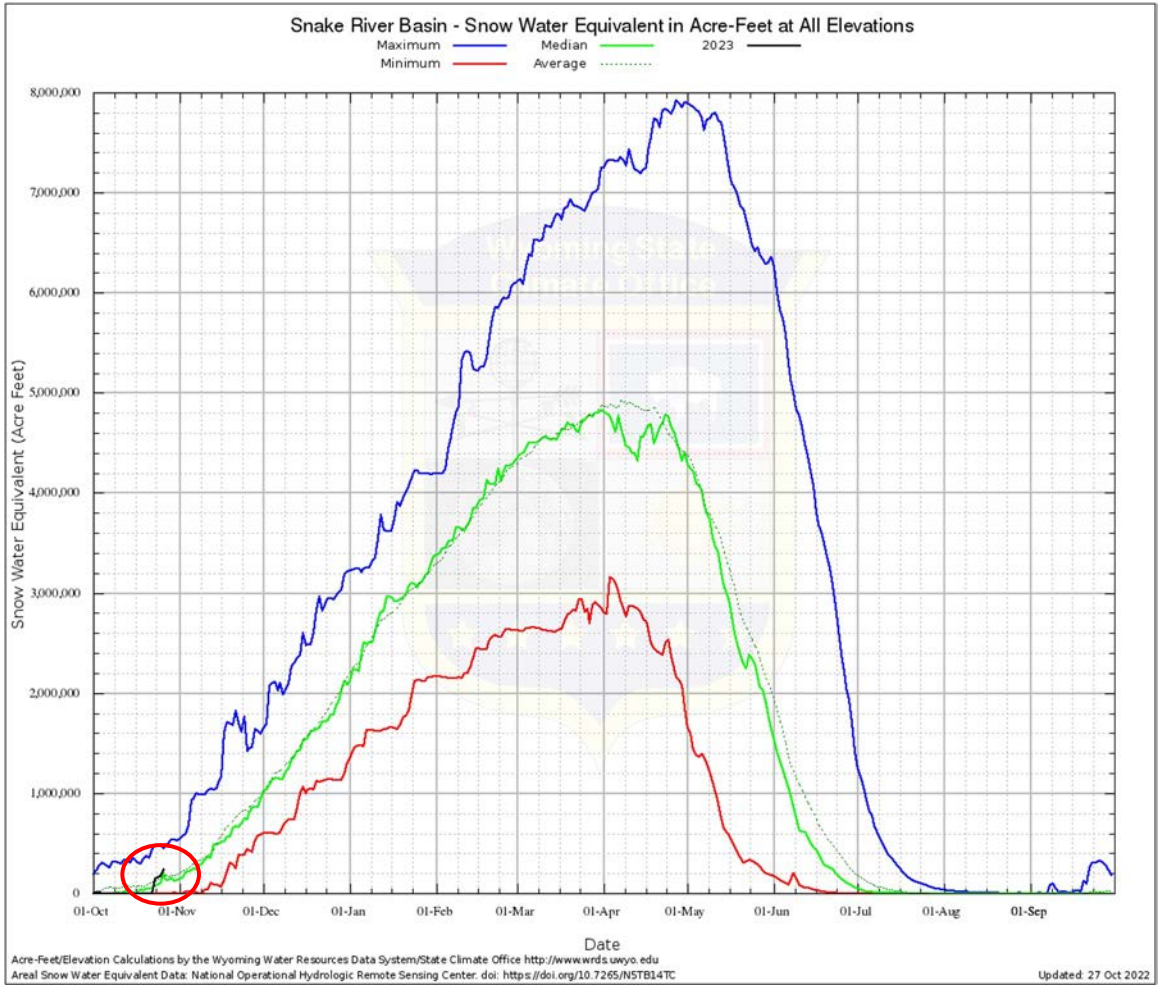
Wind River Basin Max, Min, Median snowpack through the year with last year's and this year's trace.



http://www.wrds.uwyo.edu/Snow/BasinPeakSWE.html

Snow Water Volume by Basin (27 Oct 2022)

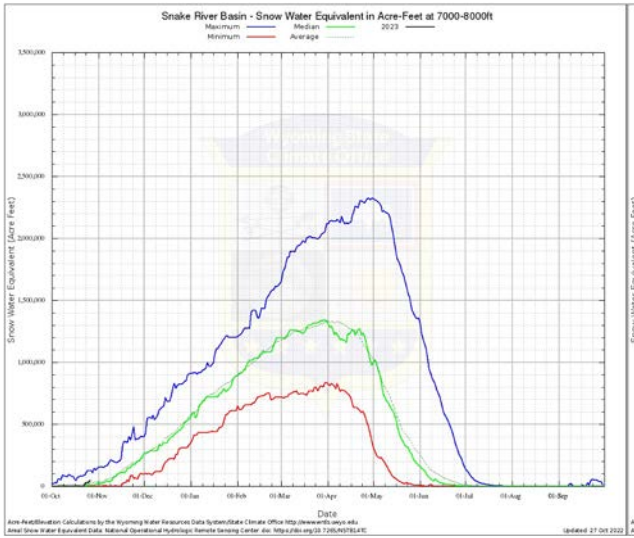
Snake River Basin Max, Min, Median, and Average snowpack volume through the year with this year's trace.



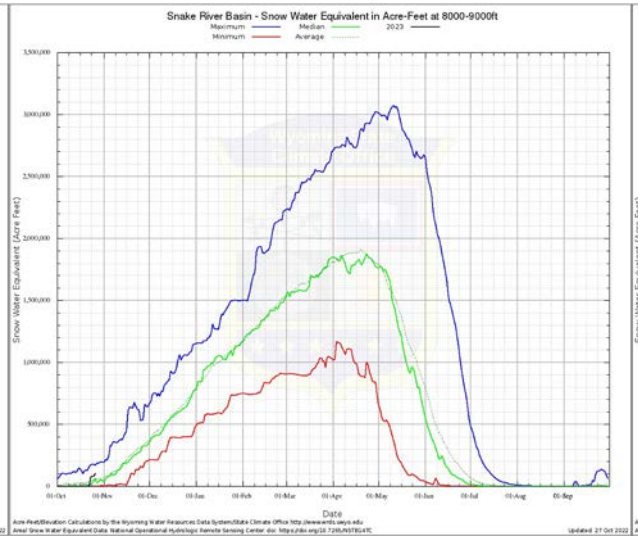
http://www.wrds.uwyo.edu/Snow/SWEVolume/SWEVolume.html

Snow Water Volume by Basin by Elevation (27 Oct 2022)

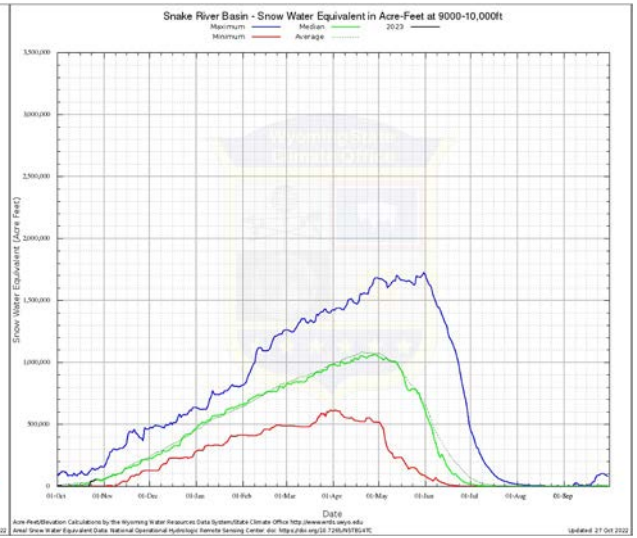
7000-8000 ft



8000-9000ft



9000-10,000ft



Raw Volumes - Does not take into account the three -ations: sublimation, evaporation, infiltration

http://www.wrds.uwyo.edu/Snow/SWEVolume/SWEVolume.html

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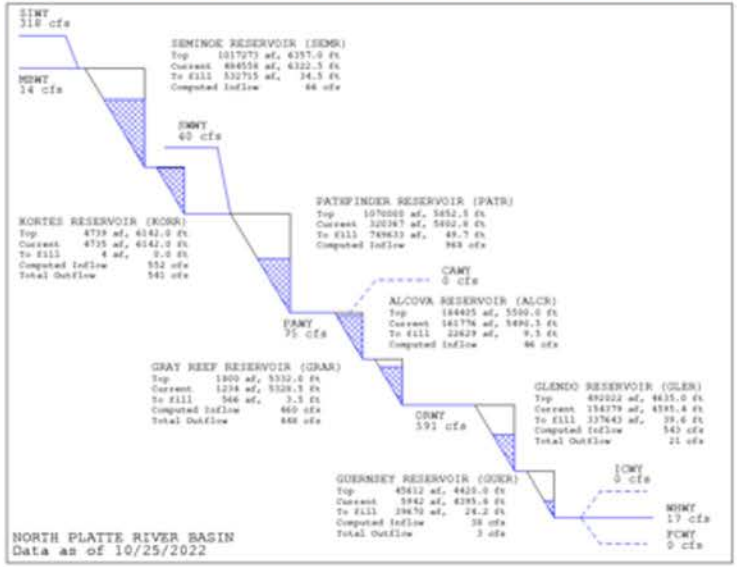
RECLAMATION

Current Reservoir Conditions: North Platte System



As of October 26, North Platte System: 37% of Full, 72% of Average

Reservoir	Content (AF)	Capacity	% of Full	% of Avg
Seminoe	484,600	1,017,300	48%	81%
Pathfinder	320,400	1,070,000	30%	58%
Glendo	154,400	492,000	31%	89%
Guernsey	5,900	45,600	13%	103%

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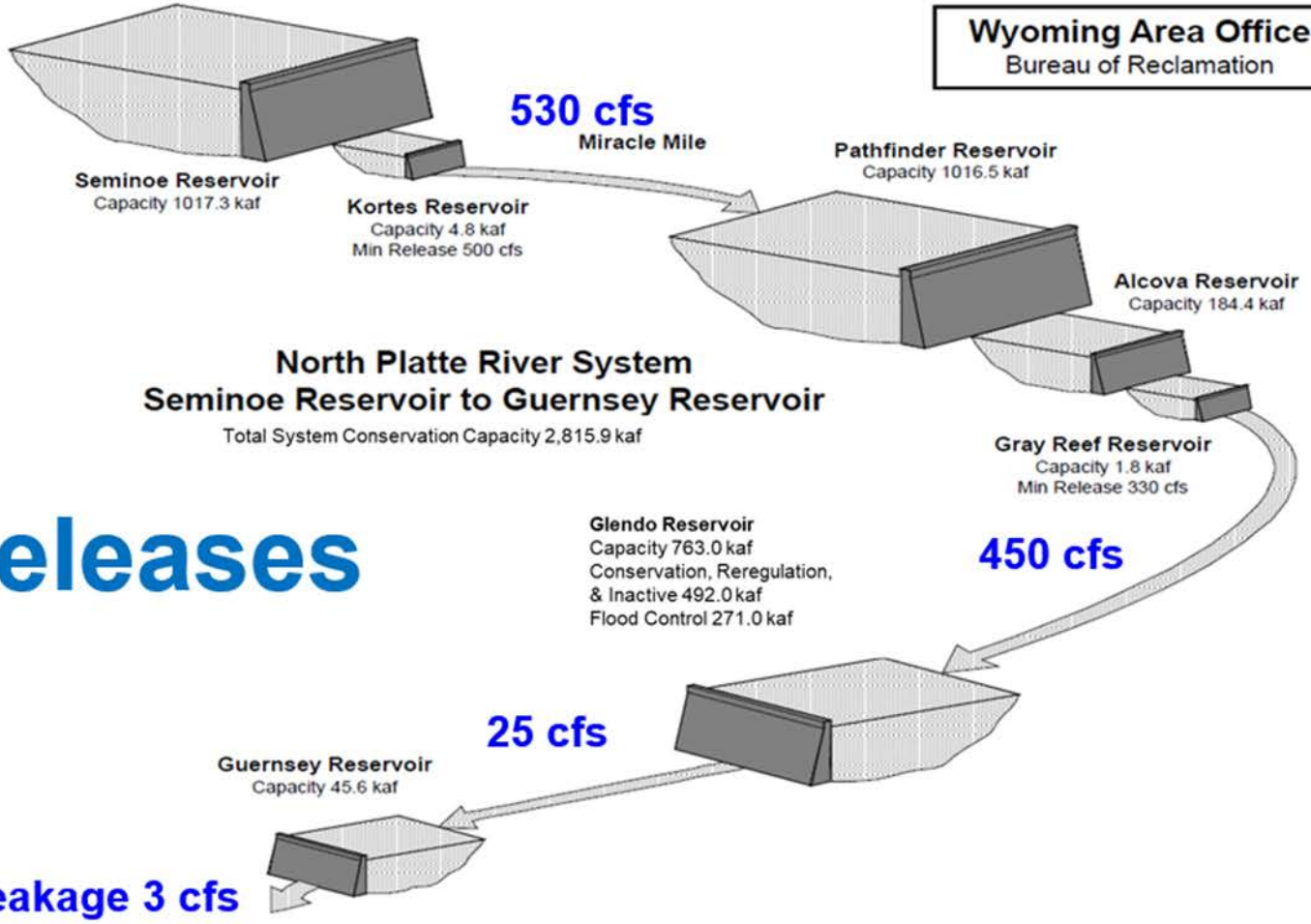
Wyoming Area Office
Bureau of Reclamation



Winter Releases

Wyoming Area Office Water Reservoir Information– https://www.usbr.gov/gp-bin/hydromet_teacup.pl

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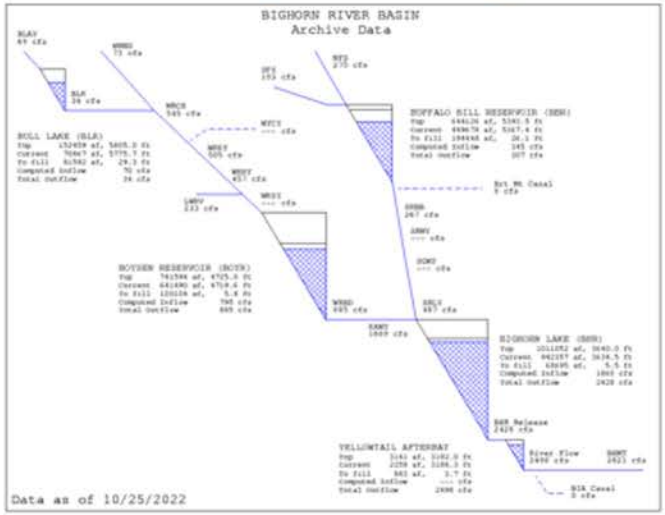
RECLAMATION

Current Reservoir Conditions: Bighorn System



https://www.usbr.gov/gp/hydromet/teacup_form.html

As of October 25, Bighorn System: 75% of Full, 111% of Average

Reservoir	Content	Capacity	% Full	% Avg
Bull Lake	70,900	152,500	46%	95%
Buffalo Bill	449,700	646,600	70%	107%
Boysen	641,500	741,600	87%	115%

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RECLAMATION

BUFFALO BILL RESERVOIR (BBR)

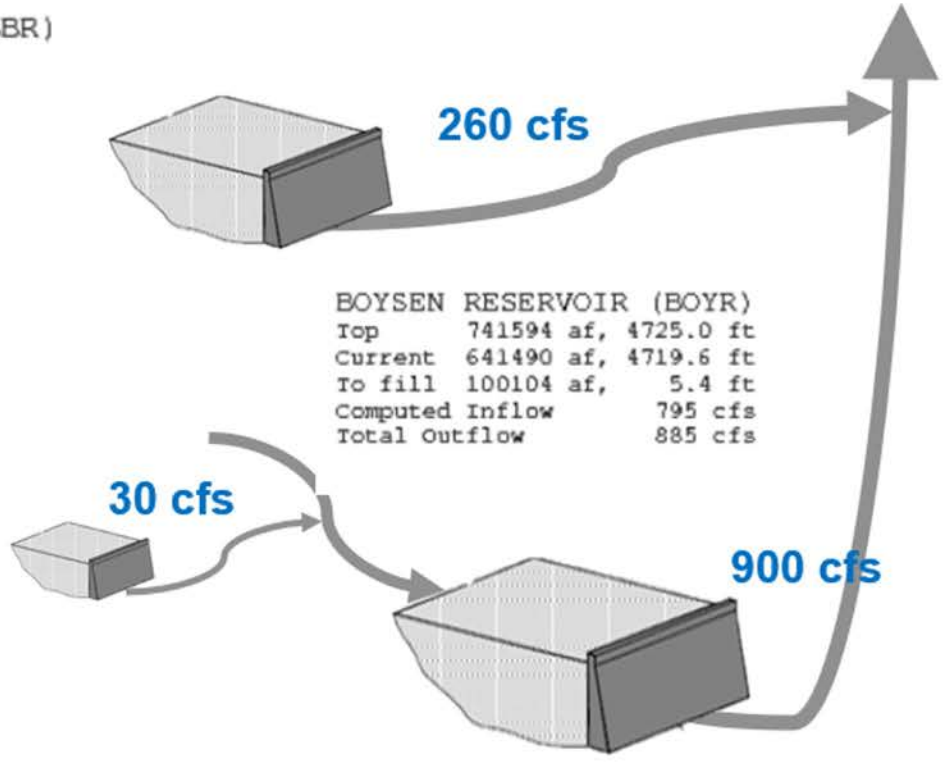
Top	644126 af,	5393.5 ft
Current	449678 af,	5367.4 ft
To fill	194448 af,	26.1 ft
Computed Inflow		345 cfs
Total Outflow		207 cfs

BOYSEN RESERVOIR (BOYR)

Top	741594 af,	4725.0 ft
Current	641490 af,	4719.6 ft
To fill	100104 af,	5.4 ft
Computed Inflow		795 cfs
Total Outflow		885 cfs

BULL LAKE (BLR)

Top	152459 af,	5805.0 ft
Current	70867 af,	5775.7 ft
To fill	81592 af,	29.3 ft
Computed Inflow		70 cfs
Total Outflow		34 cfs



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Reservoirs, Dams & Hydropower

AgriMet
Boat Ramps
HydroMet

- Map of Stations by Type
- Map of Stations by State
- Instant Data Requests
- Daily Data Requests
- Monthly Data Requests
- TEACUP Reservoir Models
- Automated Retrieval Documentation
- Inflow Computations and Plots
- Daily Data Analysis
- Annual Cumulative and Historical Average Plots

Power Levels
Projects & Facilities
Recreation
Safety of Dams

Welcome to the HYDROMET Data System

Program Information

The Bureau of Reclamation operates a network of automated hydrologic and meteorologic monitoring stations (HydroMet) located throughout the Missouri Basin Region. The HydroMet network collects remote field data and transmits it via satellite to provide real-time water management capability. HydroMet data is then integrated with other sources of information to provide streamflow forecasting and current runoff conditions for river and reservoir operations. Please read this important Disclaimer about the real-time, PROVISIONAL data displayed on these pages.

Bighorn Lake from atop Yellowtail Dam

Station Information

- Map of Stations by Type
- Map of Stations by State
- Station Specific Data Links

Data Request Forms

- Instant Data Requests
- Daily Data Requests
- Monthly Data Requests (RES070)
- TEACUP Reservoir Models
- Hydromet Data Query
- Automated Retrieval Documentation (PDF)
- Hydromet Tools Public Version (PDF)

Analysis and Models

- Inflow Computations and Plots
- Daily Data Analysis
- Annual Cumulative and Historical Average Plots (QNAPLT)

Missouri Basin and Arkansas-Rio Grande-Texas Gulf Regions

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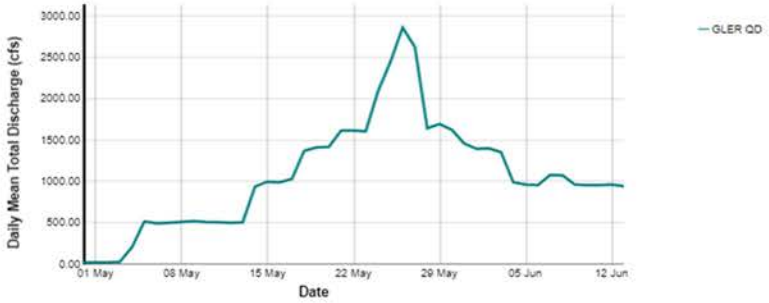
Daily Data Quick Plot

This form outputs an interactive graph displaying daily data. Daily data is obtained once per day and data from the previous day is available after 5:25 AM on the current day. Enter a date range, station, and parameter and then submit your request.

- Start Date (YYYY-MM-DD): 2022-05-01
- End Date (YYYY-MM-DD): 2022-06-14
- Station Code (start typing to search for a station): GLER
- List of parameters at the selected site: QD Daily Mean Total Discharge (cfs)

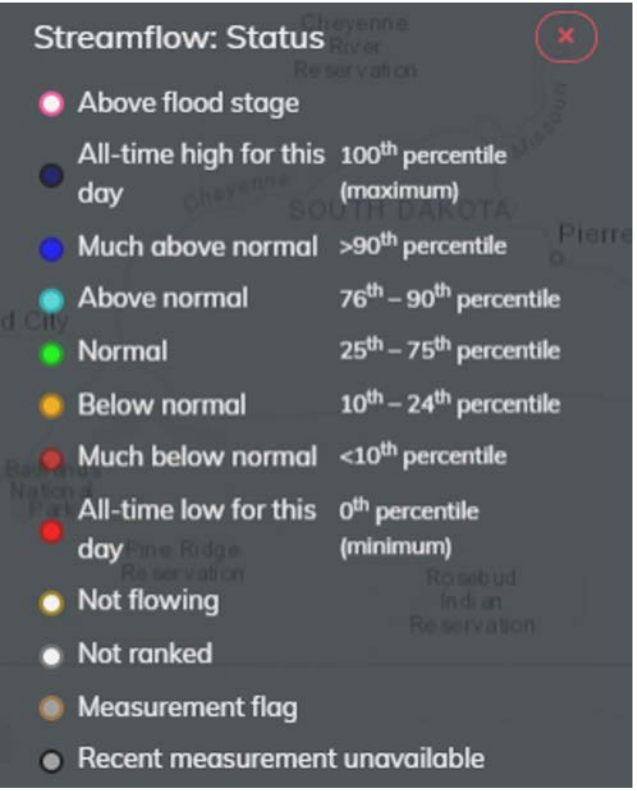
Parameter: QD

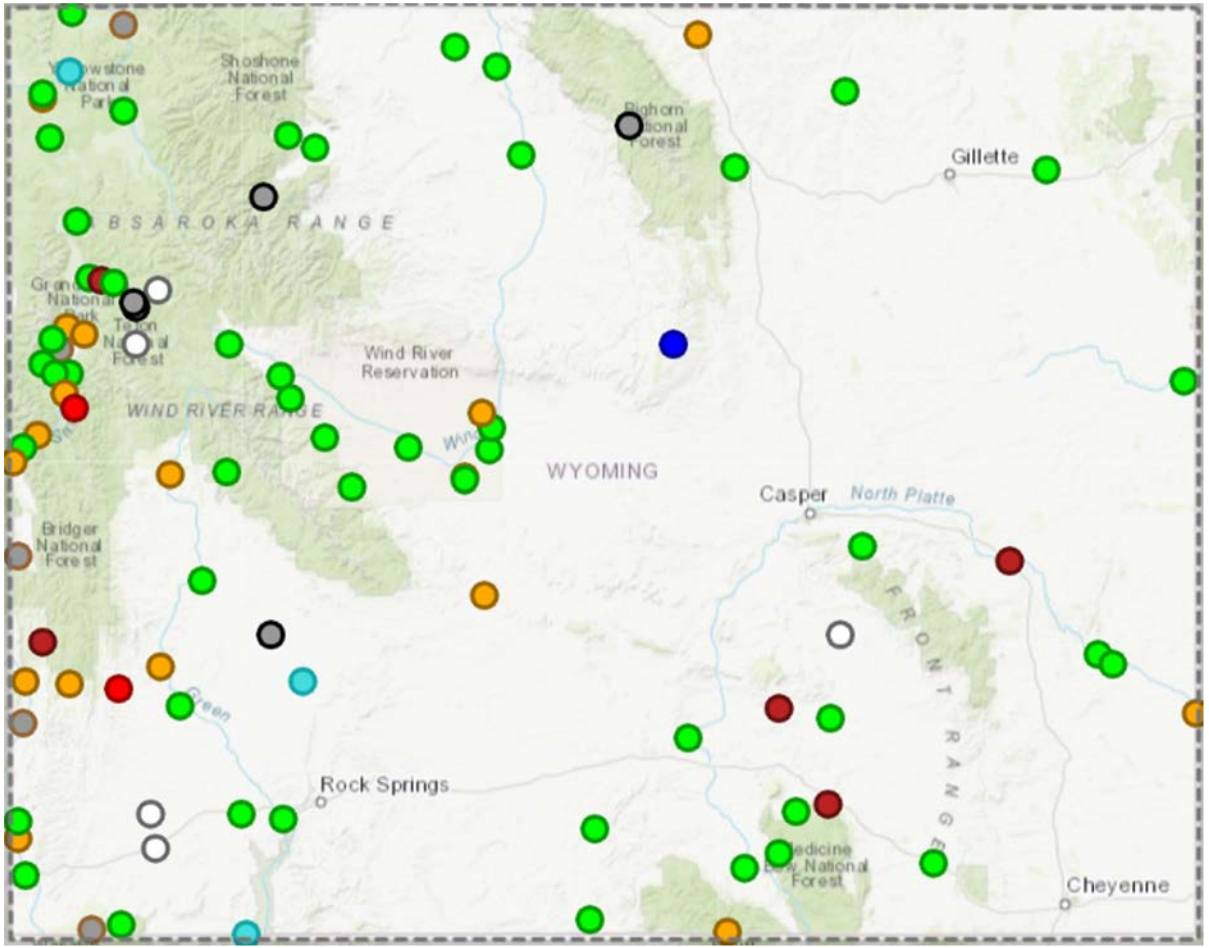
Submit



Current Streamflow Conditions (Oct 27, 2022)

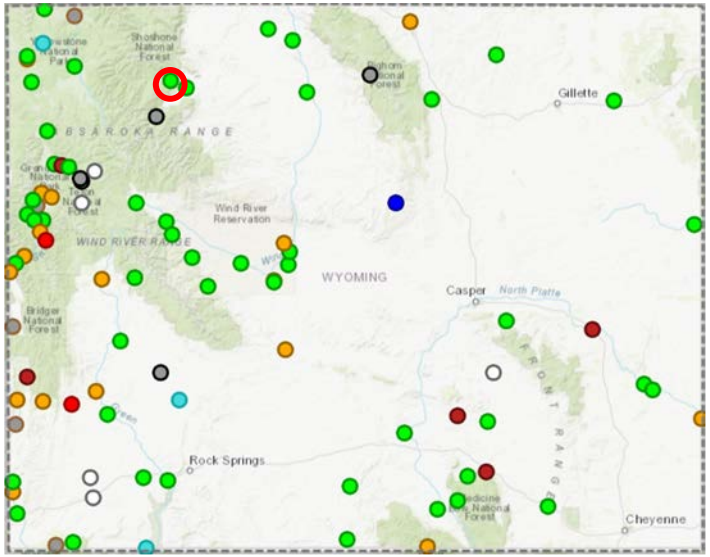
Streamflow Status





https://dashboard.waterdata.usgs.gov/

Select WY Streamflows

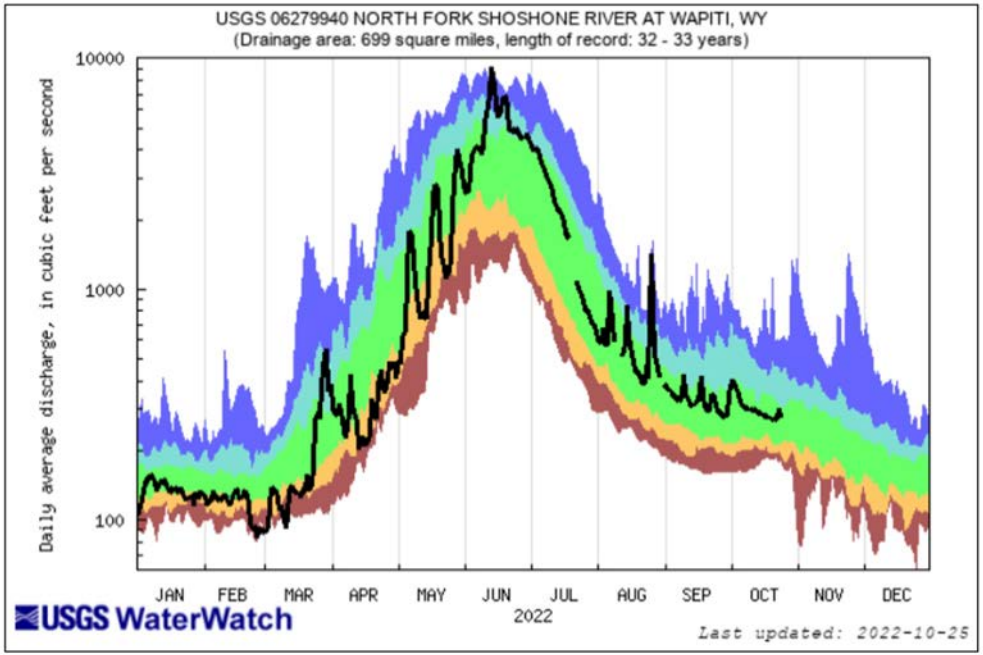


https://dashboard.waterdata.usgs.gov/

https://waterdata.usgs.gov/

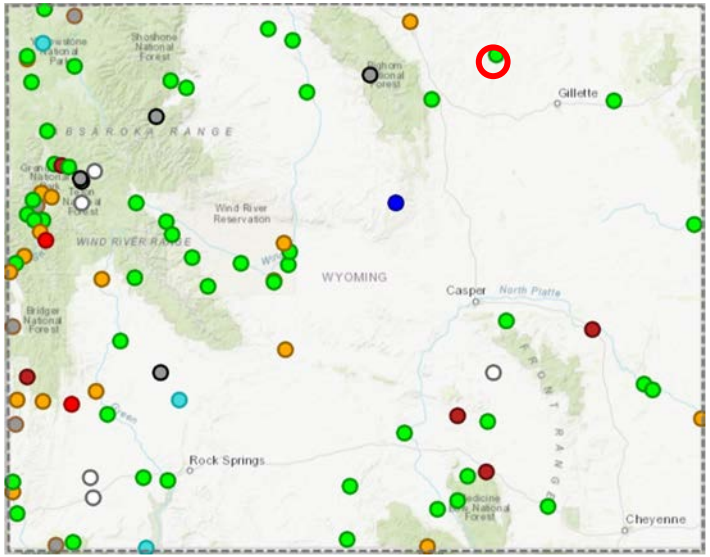
North Fork Shoshone River at Wapiti, WY

Last updated Oct 27, 2022



Explanation - Percentile classes							
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal		

Select WY Streamflows

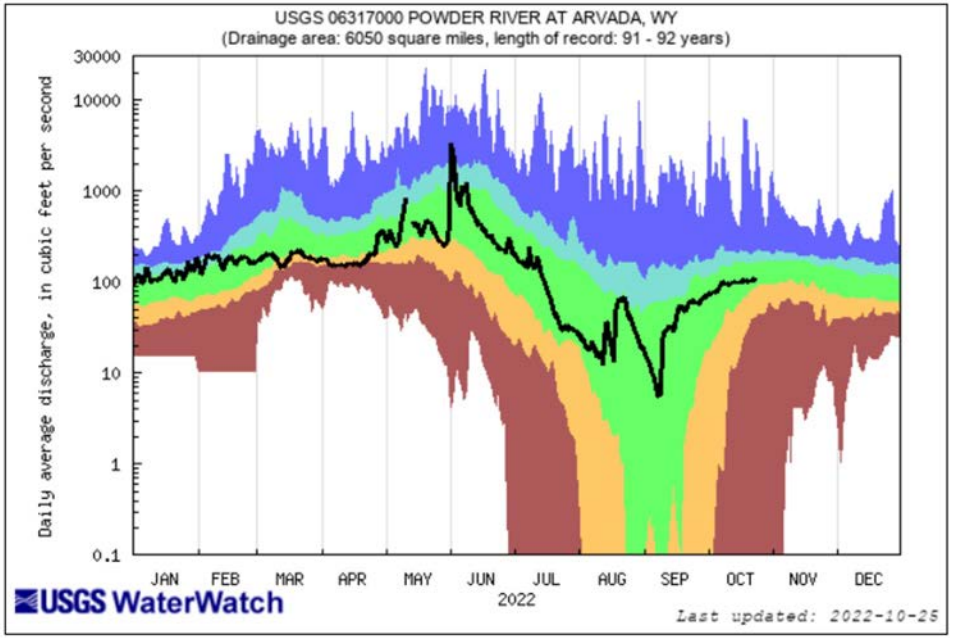


https://dashboard.waterdata.usgs.gov/

https://waterdata.usgs.gov/

Powder River at Arvada, WY

Last updated Oct 27, 2022



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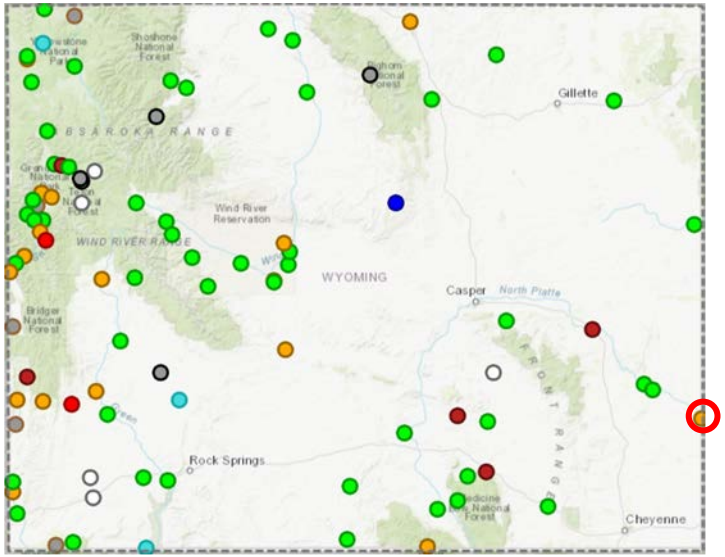
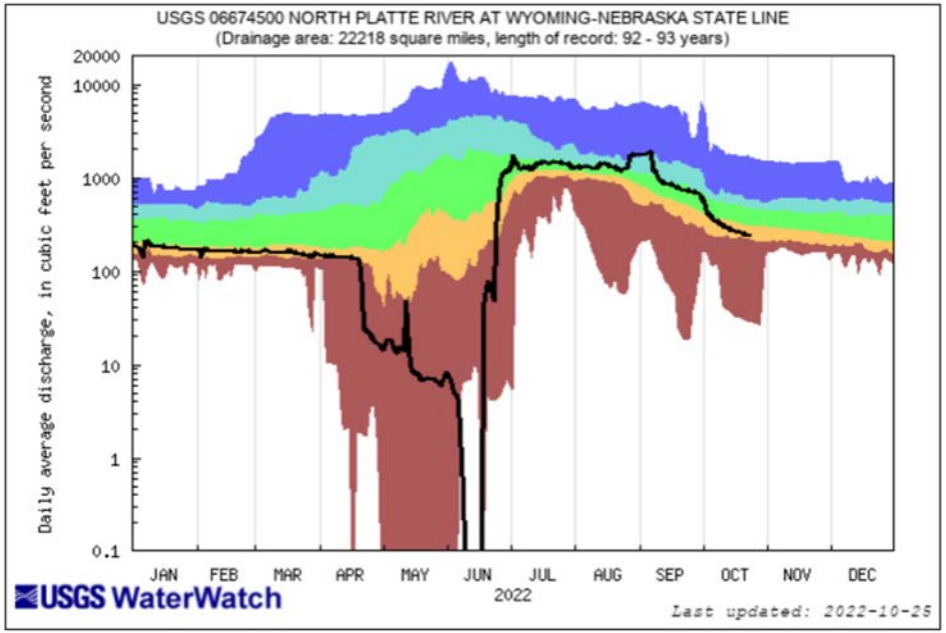


https://dashboard.waterdata.usgs.gov/

https://waterdata.usgs.gov/

North Platte River at WY-NE State Line

Last updated Oct 27, 2022



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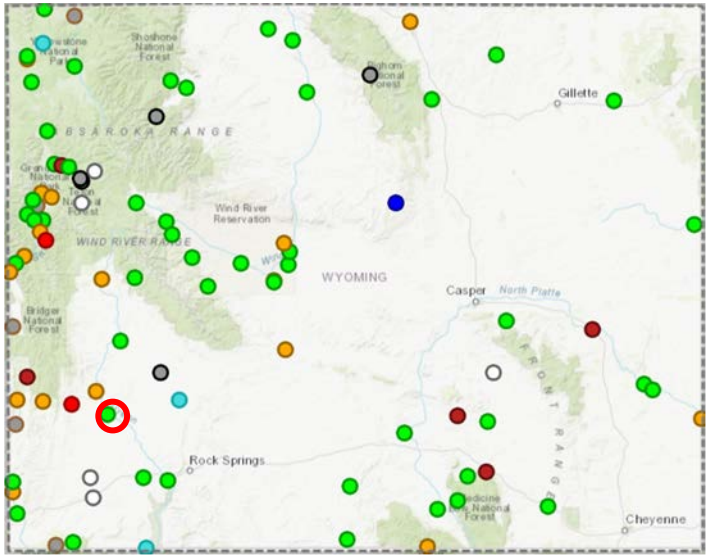
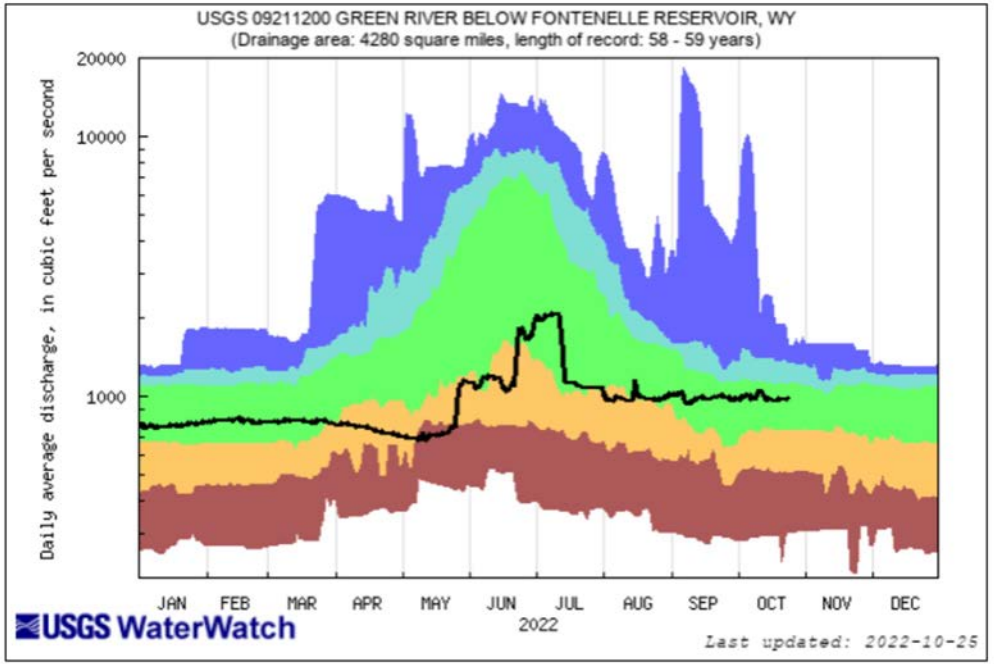


https://dashboard.waterdata.usgs.gov/

https://waterdata.usgs.gov/

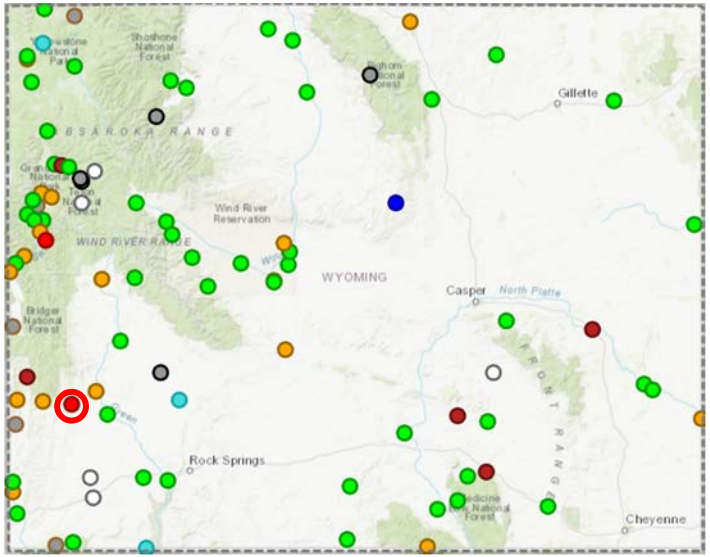
Green River at Below Fontenelle Reservoir, WY

Last updated Oct 27, 2022



Explanation - Percentile classes							
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal		

Select WY Streamflows

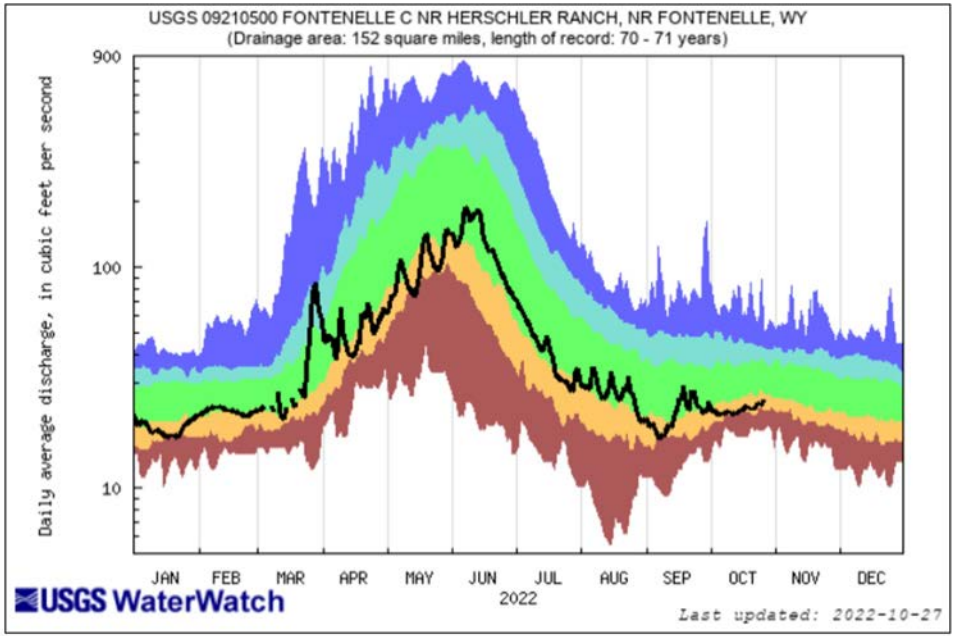


https://dashboard.waterdata.usgs.gov/

https://waterdata.usgs.gov/

Fontenelle Creek near Fontenelle, WY

Last updated Oct 27, 2022



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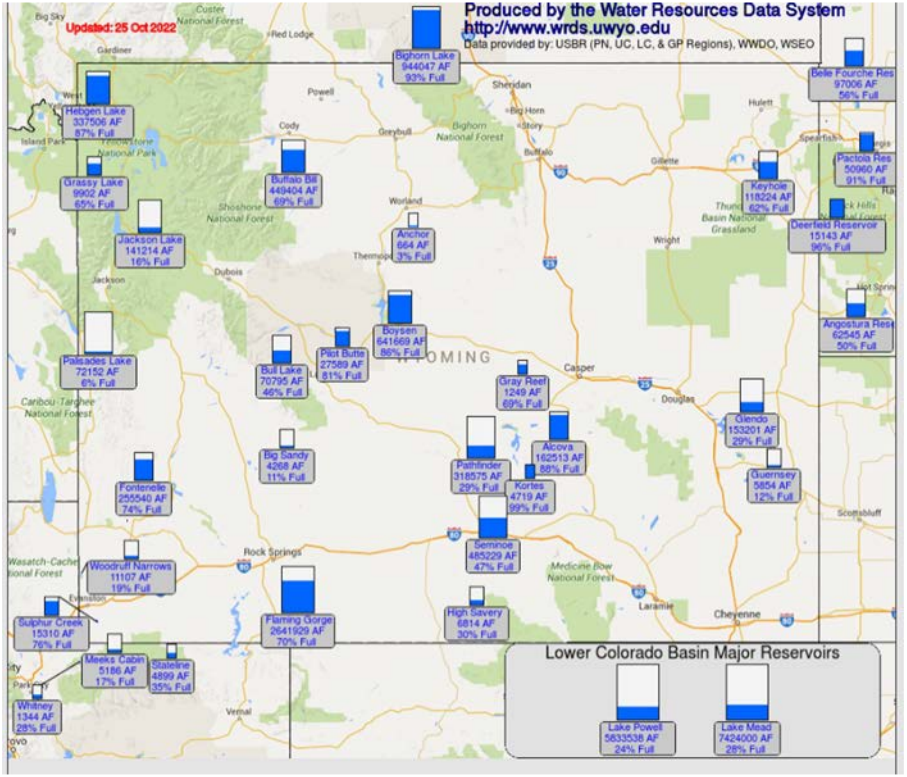
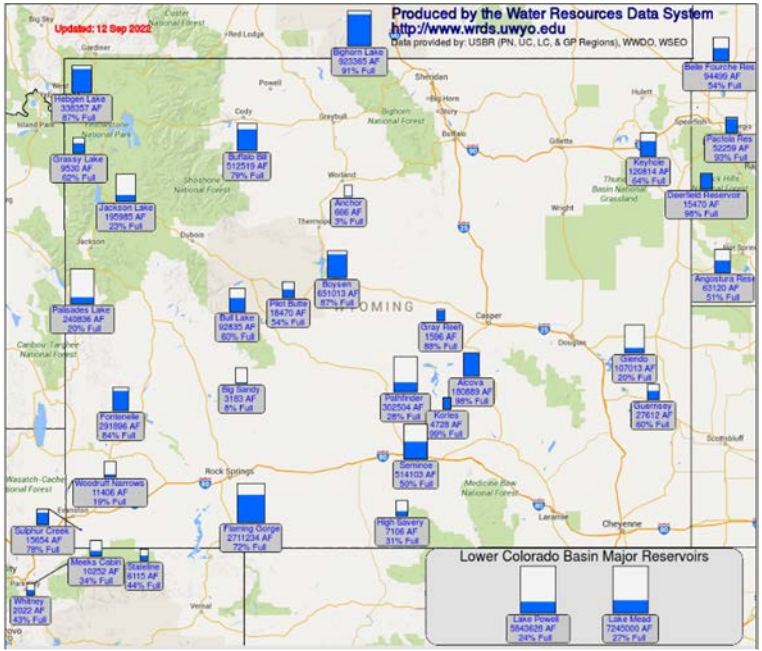
WY Reservoirs (Oct 27, 2022)

Oct 27, 2022



- Minor changes in contents
- Larger decreases- Palisades, Jackson, Buffalo Bill, Fontenelle

Sept 15, 2022

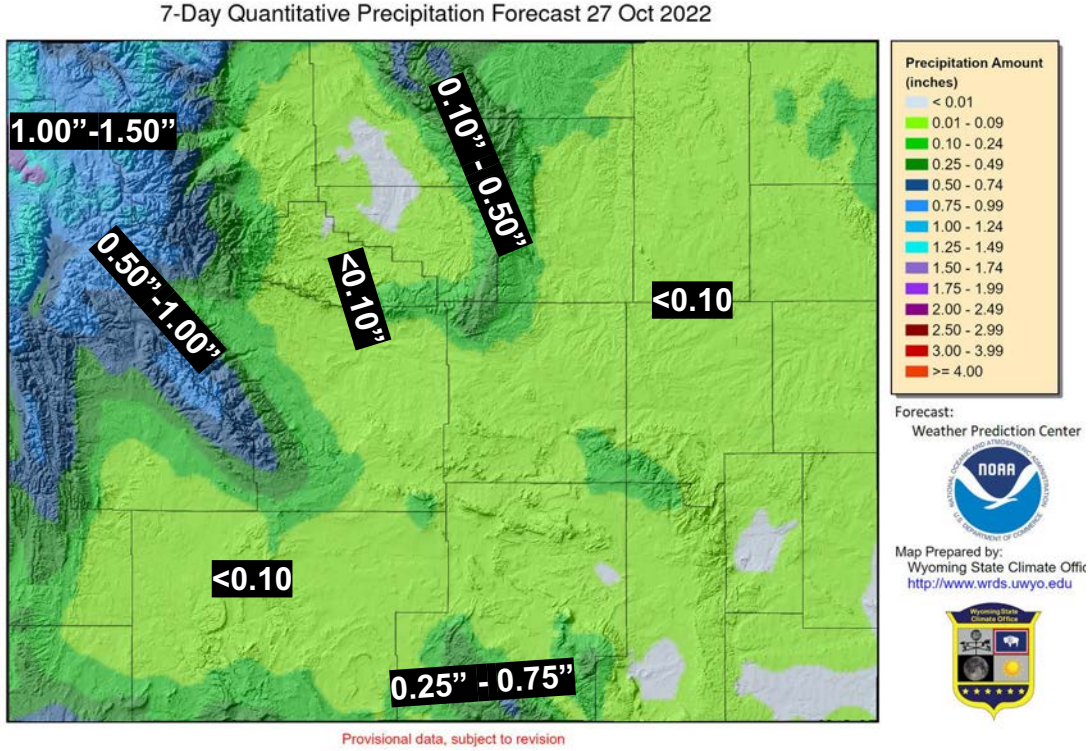


http://www.wrds.uwyo.edu/surface_water/teacups.html

Forecasts & Outlooks

7-Day Total Precipitation Forecast

October 27-November 3



The Quantitative Precipitation Forecast shows the liquid amount of forecasted precipitation over the next 7 days
The Forecast is created by the National Weather Service Weather Prediction Center
Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Centers for Environmental Prediction, and Weather Prediction Center - https://www.wpc.ncep.noaa.gov
Map Layout Created 27 Oct 2022 http:/www.wrds.uwyo.edu

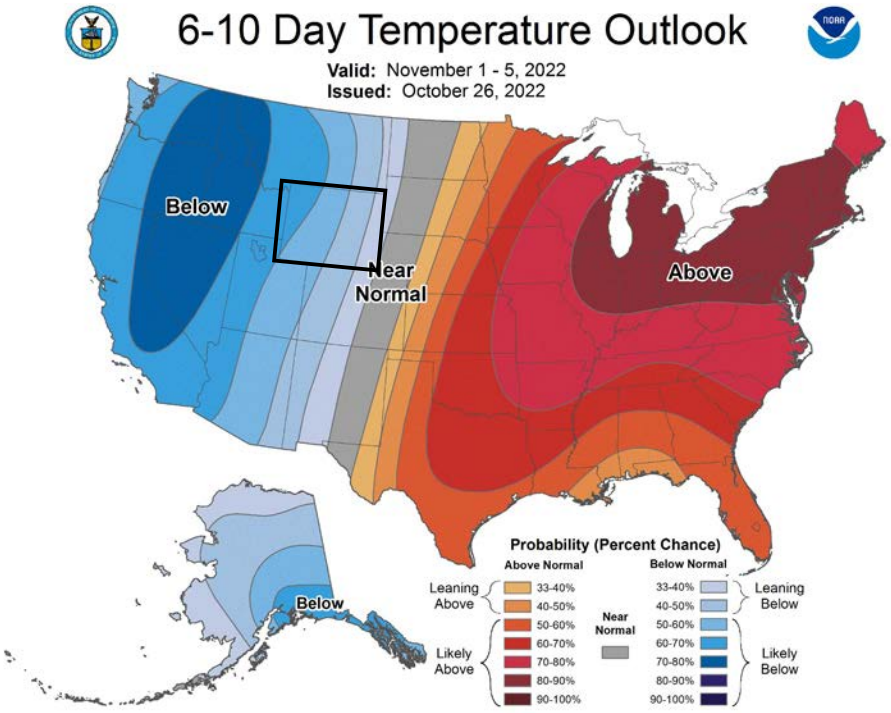
- Warmer temperatures starting tomorrow
- Dry and breezy throughout the state through next Monday.
- Increased precipitation chances after Sunday.
- Precipitation will start in the west move eastward through the mid-week
- Model uncertainty is high

https://bit.ly/7_dayQPForecast

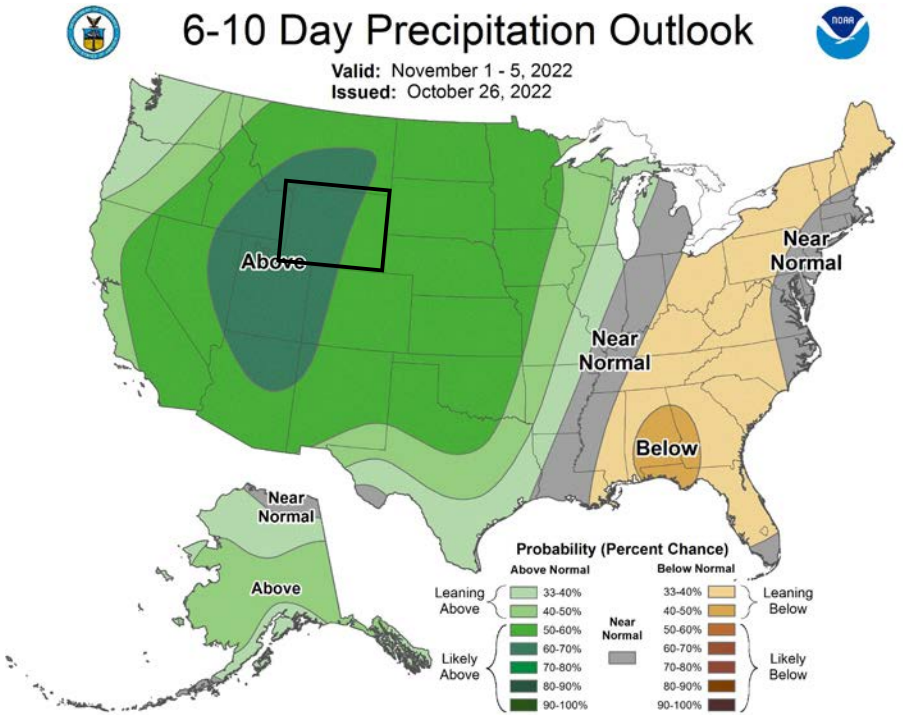
6-10 Day Temp & Precip Outlook

November 1-5

https://bit.ly/CPC6_10Day



Weak to very strong below normal temperature signal increasing from west to east

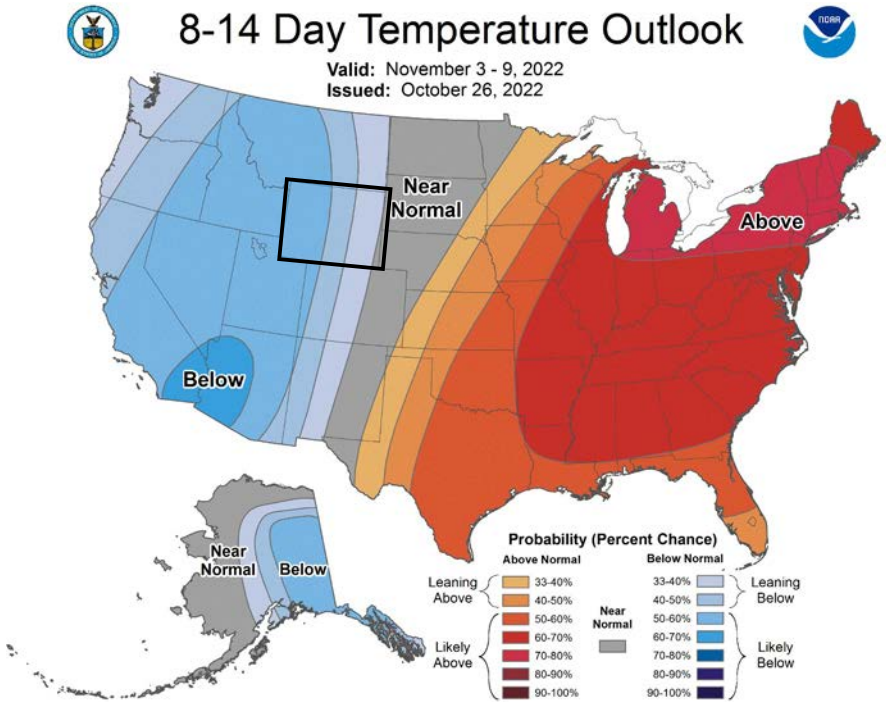


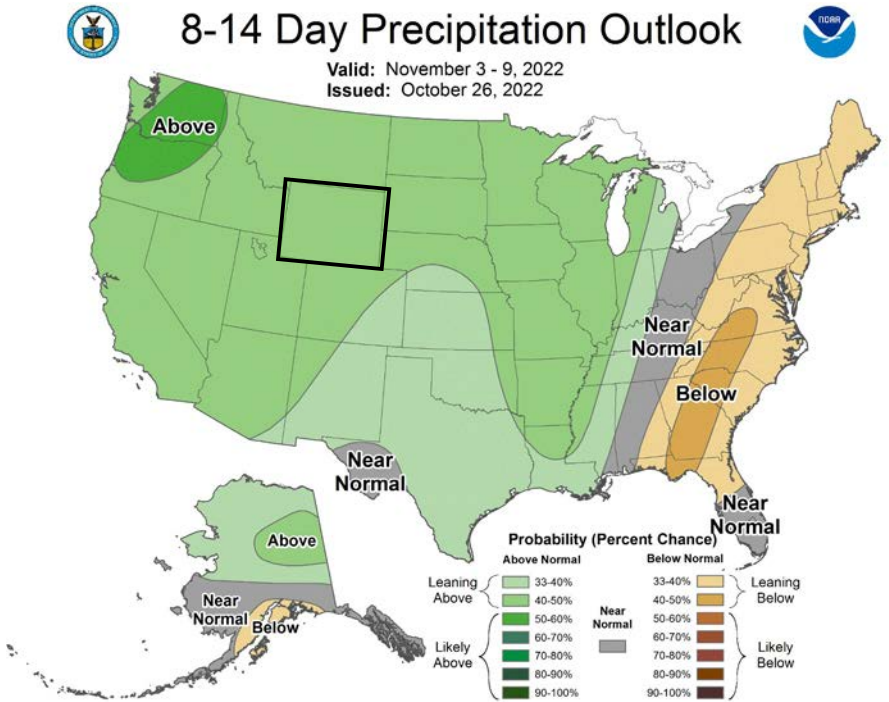
Strong to very strong signal for above normal precipitation probably favoring the mountains

8-14 Day Temp & Precip Outlook

November 3-9

https://bit.ly/CPC8_14Day





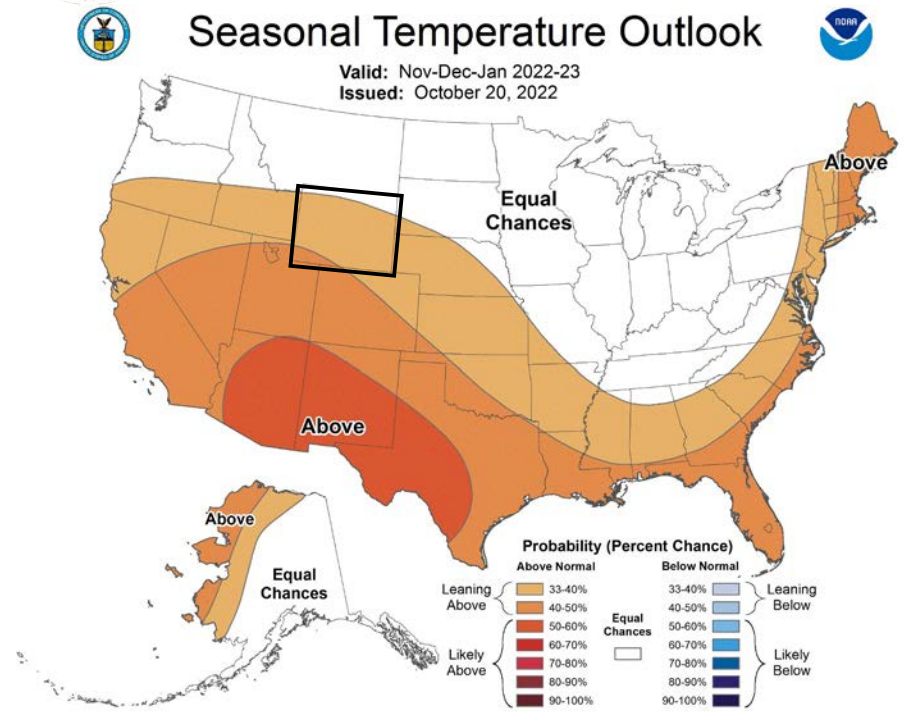
Weak to strong above normal temperature signal increasing from east to west

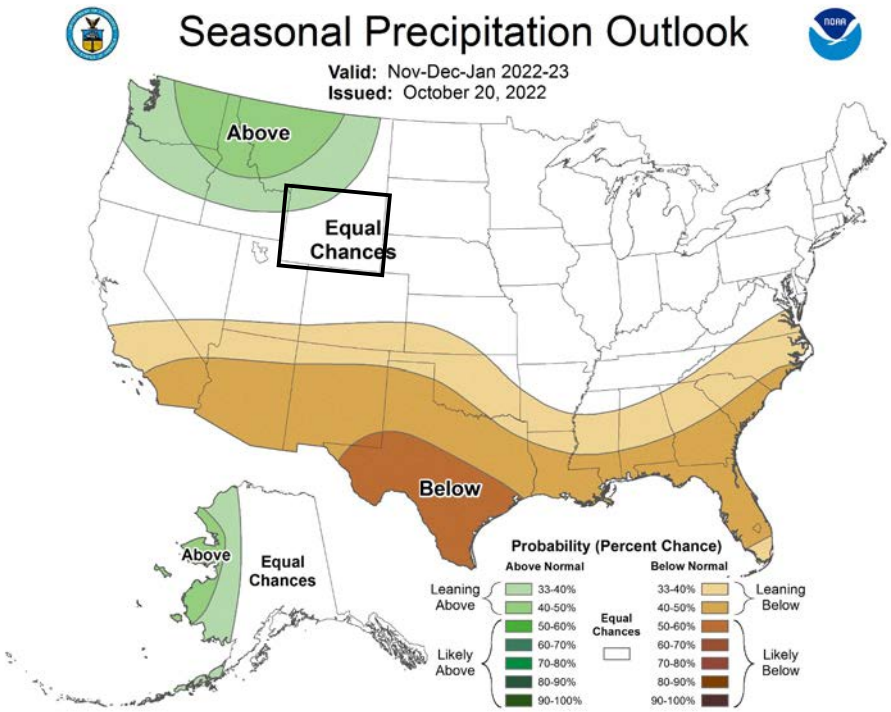
Moderate signal for above normal precip for all WY, probably favoring the mountains

3-Month Temp & Precip Outlook

November-December-January 2022-2023

https://bit.ly/CPC_Seasonal





Weak above normal signal for almost all WY. Weakens to the north

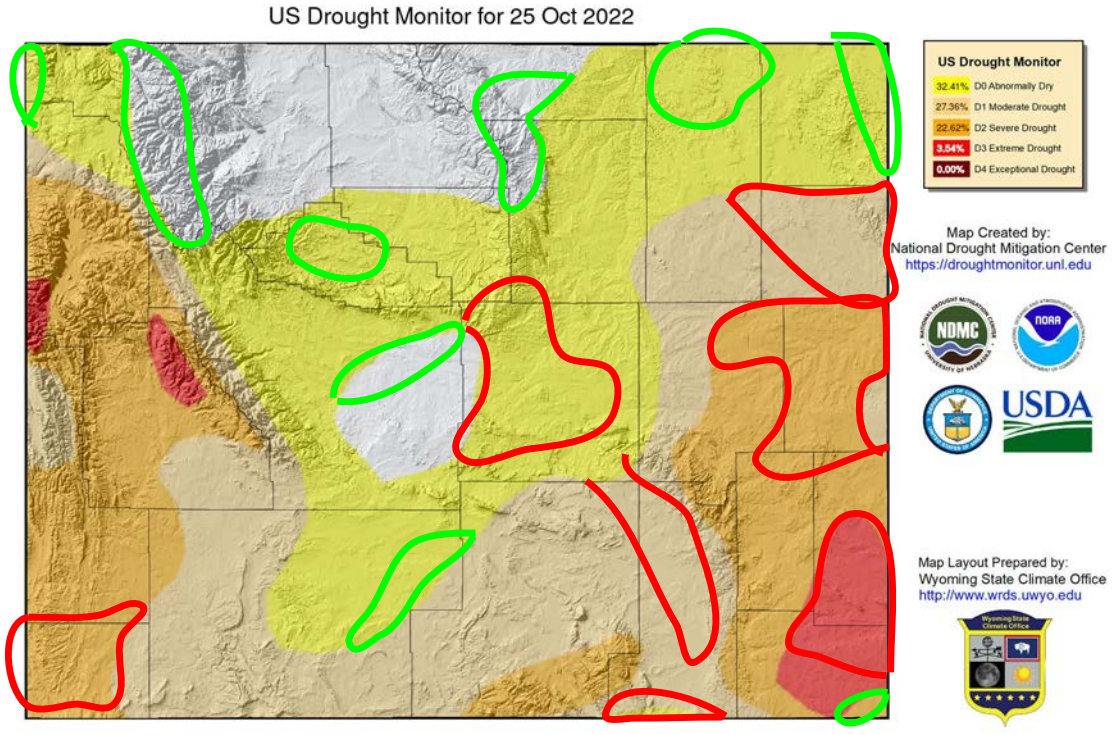
Weak above normal signal limited to the Yellowstone area, otherwise neutral

How to get involved ...

US Drought Monitor for October 25, 2022

(Released Thursday, October 27, 2022)

Valid 8 a.m. EDT



Drought Level	Percentile
None	>30
D0 (Abnormally Dry)	21 to 30
D1 (Moderate Drought)	11 to 20
D2 (Severe Drought)	6 to 10
D3 (Extreme Drought)	3 to 5
D4 (Exceptional Drought)	0 to 2

https://youtu.be/45MQ1GB-uTc

Improvements and degradations since the last webinar. Recent precipitation in the north has resulted in Improvements in many areas across the north. Degradations in the east and southeast which has seen little precipitation the last month.

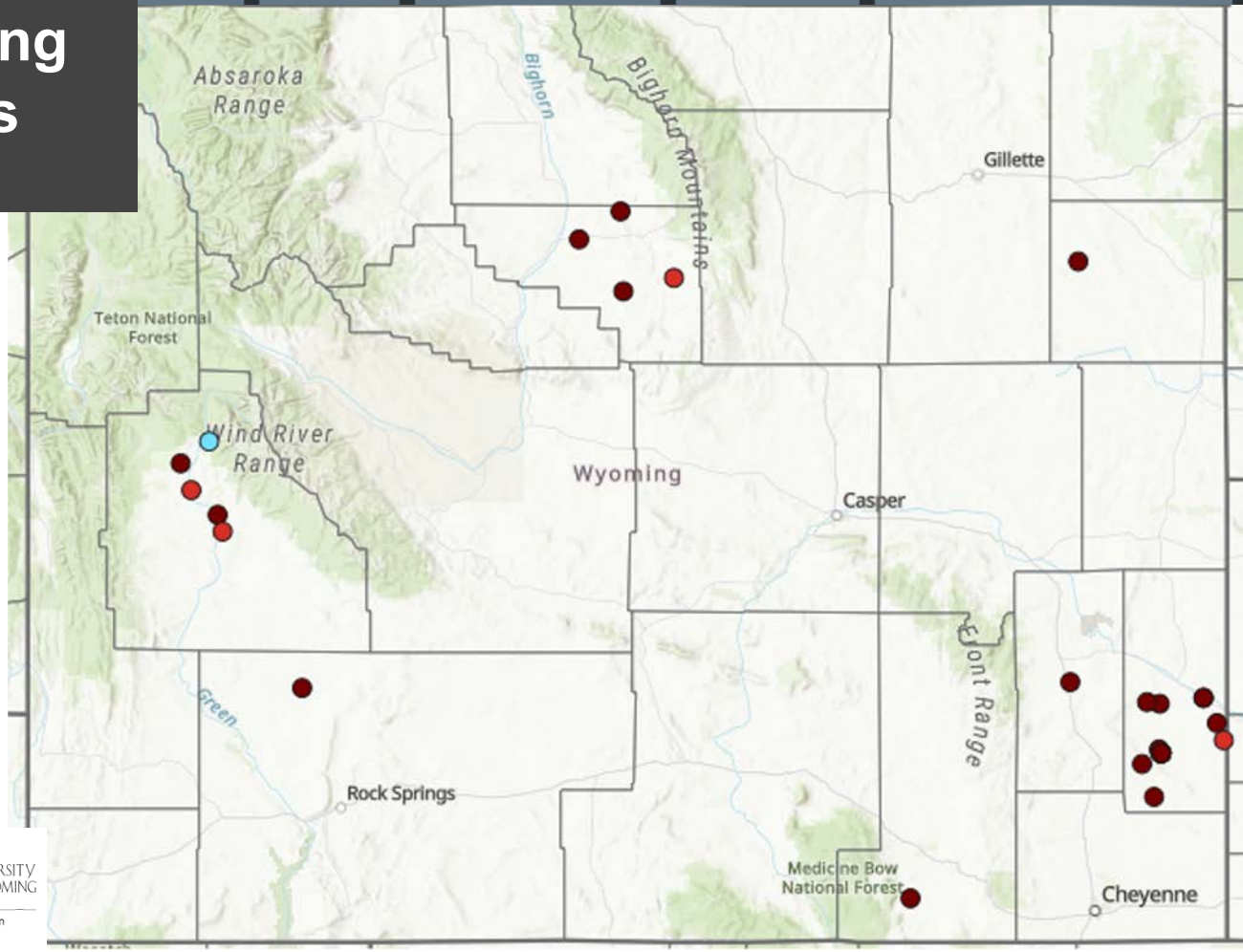
https://droughtmonitor.unl.edu

droughtmonitor.unl.edu

Condition Monitoring Observer Reports

https://bit.ly/3OzbDud

- Severely Dry
- Moderately Dry
- Mildly Dry
- Near Normal
- Mildly Wet
- Moderately Wet
- Severely Wet

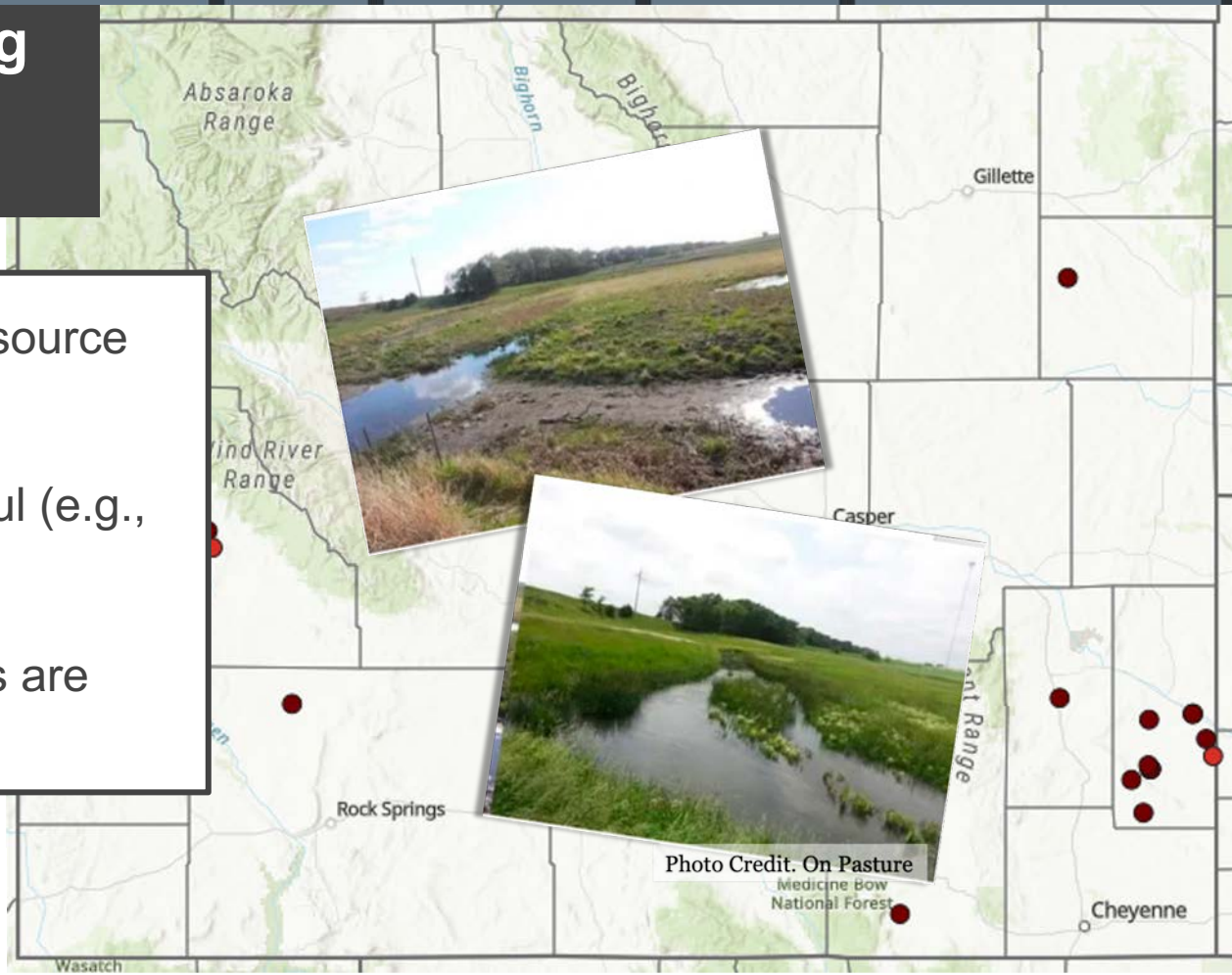


USDA Northern Plains Climate Hub
U.S. DEPARTMENT OF AGRICULTURE
University of Wyoming Extension

Condition Monitoring Observer Reports

https://bit.ly/3OzbDud

- Comparison photos → resource conditions
- Regular reporting is helpful (e.g., monthly)
- ***Note:*** Reports and photos are available to the public.



CoCoRaHS - Community Collaborative Rain, Hail, & Snow Network

WRDS Water Resources Data System

COMMUNITY COLLABORATIVE RAIN, HAIL & SNOW NETWORK
"Because every drop counts"

Home | Countries | States | View Data | Maps | My Data | My Account | Admin | Logout

My Data Entry : Daily Precipitation Report Form

Enter My New Reports
- Daily Precipitation
- Multi-Day Accumulation
- Hail
- Significant Weather
- Monthly Zeros
- Condition Monitoring Report
- Soil Moisture
- Evapotranspiration
- Ice Accretion - Pilot

FROST Reports
- Frost
- Optics
- Snowflake
- Thunder

List/Edit My Reports
- Daily Precipitation
- Multi-Day Accumulation
- Hail
- Significant Weather
- Condition Monitoring Report
- Soil Moisture
- Evapotranspiration

FROST Reports
- Optics
- Frost
- Snowflake
- Thunder

For observations spanning more than 24 hours, please use the multiple day accumulation report. Français

Precipitation Report Form Submit Reset

Station Number : WY-AB-138
Station Name : Laramie 1.8 ENE

* Denotes Required Field

8/14/2022 *Observation Date
7:00 AM *Observation Time
2.73 in. *Gauge Catch: Rain and Melted Snow to the nearest hundredth inch that has fallen in the gauge during the past 24 hours, or T for trace, or NA for unknown.

Observation Notes: (This will be available to the public)
In almost 20 years of CoCoRaHSing, yesterday was only the 4th time the inner cylinder has overflowed twice in 24 hours and only the 16th time it has ever overflowed. Very heavy, intense precipitation for 2 hours with

24-hr Snowfall
0.0 in. Snowfall: Accumulation of new snow in inches to the nearest tenth
0.00 in. Snowfall SWE: Melted value from core to the nearest hundredth

Snowpack (Total Snow and Ice on Ground at Observation Time)
0.0 in. Snowpack Depth: Total snow and ice (new and old) in inches to the nearest half inch
0.00 in. Snowpack SWE: Melted value from core to the nearest hundredth

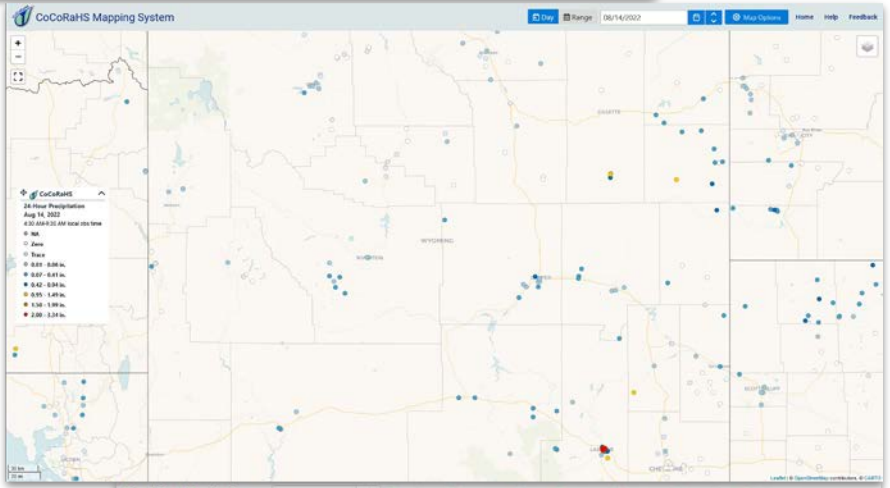
Duration Information
If a time is unknown or the storm has not ended leave it blank.

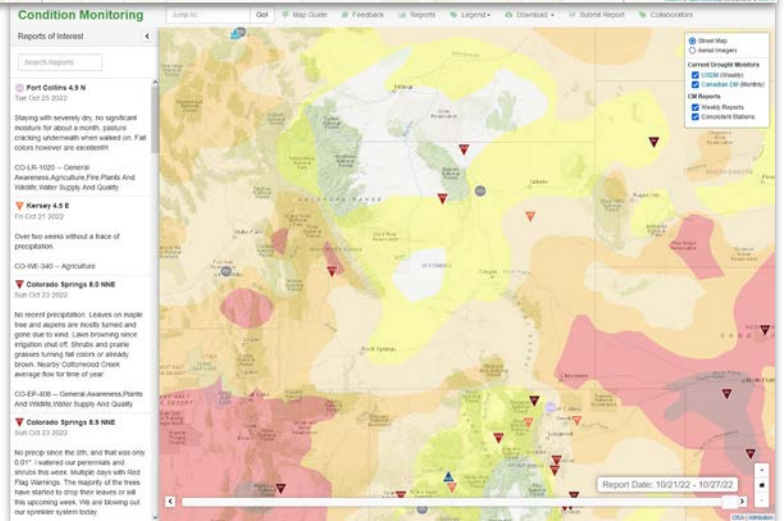
Precipitation Began 3:05 AM PM
Precipitation Ended 6:15 AM PM
Heaviest Precipitation Began 3:15 AM PM
Heaviest Precipitation Lasted 120 minutes
These times are: Very Accurate

Additional Information
Any Flooding? Severe Flooding
Yes No Did you record hourly precipitation (or other detailed time increments) for this storm? If yes, CoCoRaHS personnel may request a copy of this data later, so please save it.

Submit Data Reset

For questions or comments concerning this web page please contact info@cocorahs.org.
Unless otherwise noted, all content on the CoCoRaHS website is released under a Creative Commons Attribution 3.0 License.
Privacy Policy Data Usage Policy Copyright © 1998-2022 Colorado Climate Center. All rights reserved.



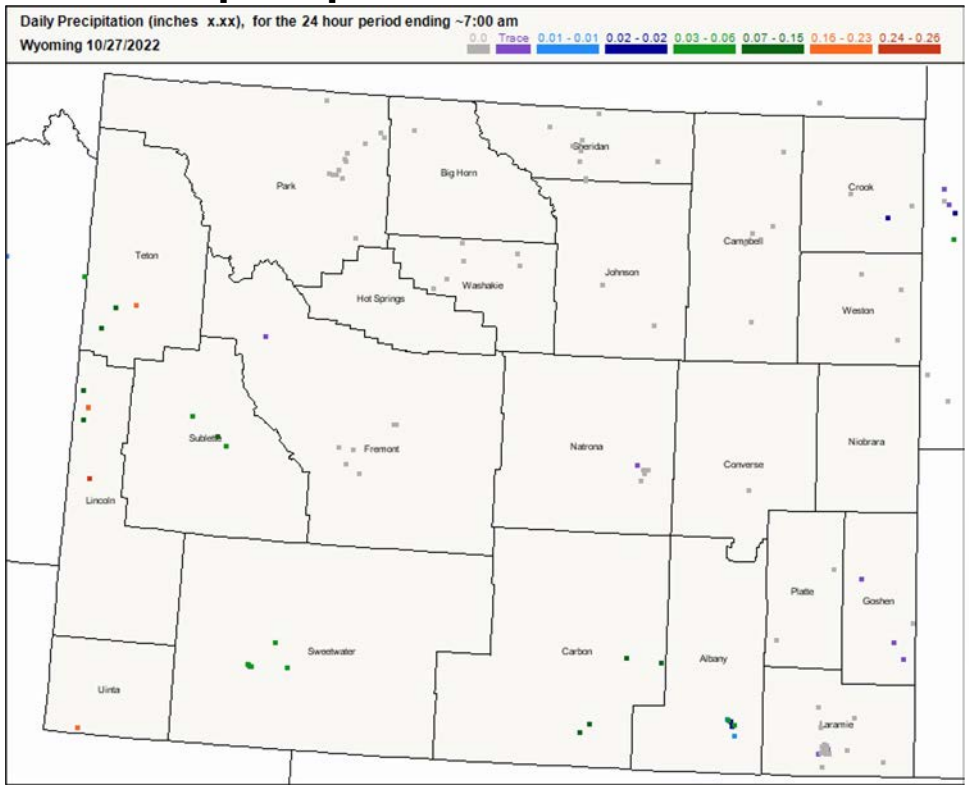


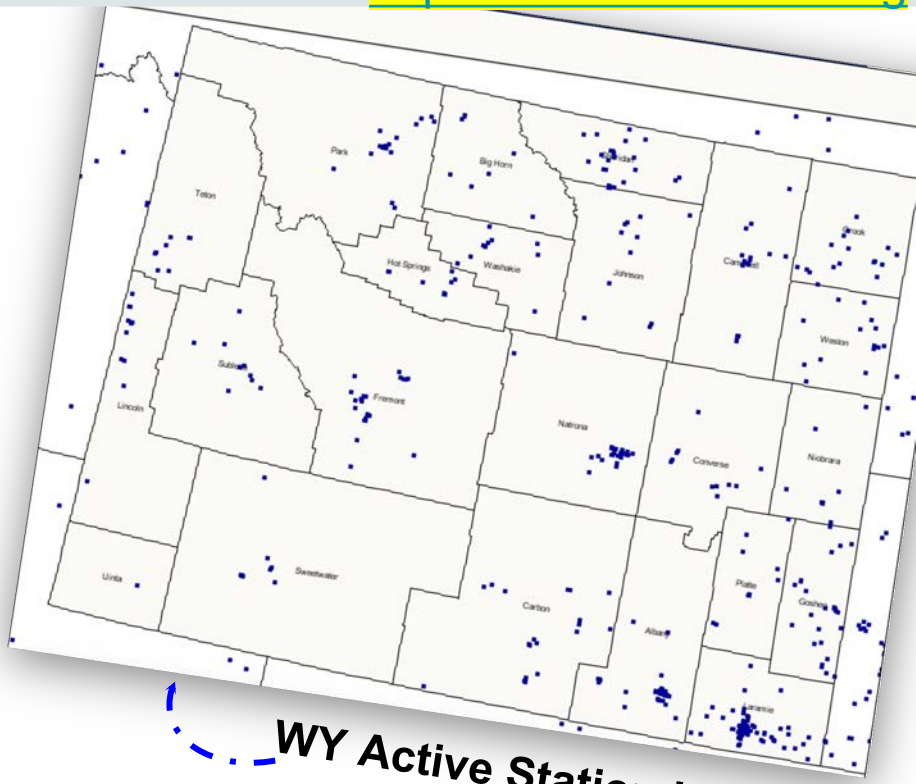
https://www.cocorahs.org

CoCoRaHS Mapping System

https://www.cocorahs.org

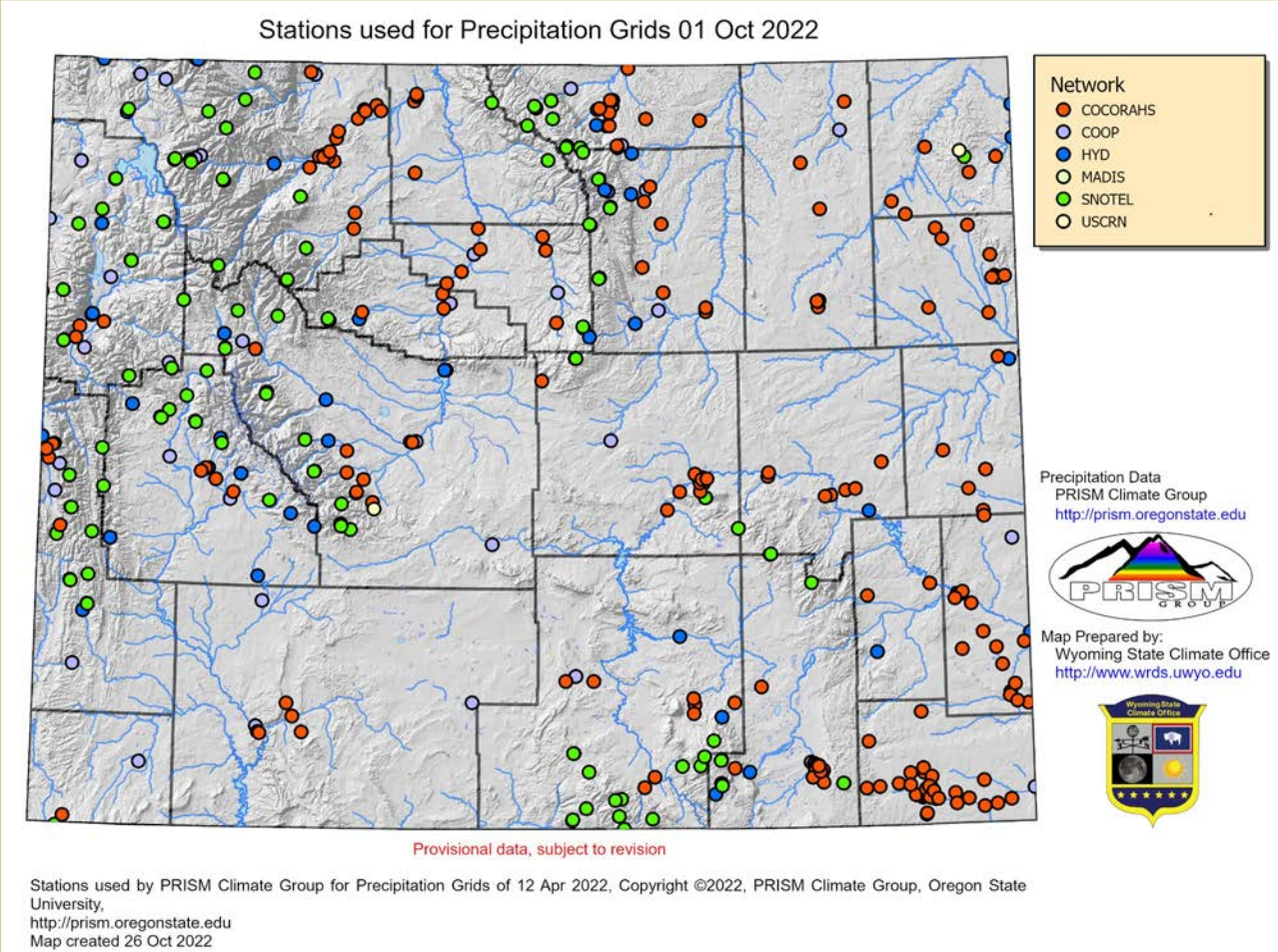
Oct 27th, 2022:
24-hour precip as of ~ 7 am





WY Active Station Locations

Different networks of stations and their locations for the data used to generate Precipitation Grids for 01 Oct 2022



https://www.cocorahs.org

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The Wyoming Conditions Monitoring Team (WCMT) organized and hosted this webinar. The WCMT is a collaborative effort of state, federal, tribal, and university partners that monitor conditions & impacts throughout the state on a weekly basis – and communicate this information to the U.S. Drought Monitor among others.

Learn more at:
https://drought.wyo.gov

Thank you! Questions?